BLACK & VEATCH Waste Science, Inc.

400 Northridge Road, Suite 350, Atlanta, Georgia 30350, (404) 594-2500, Fax: (404) 587-2930

#27618

US EPA -- Region IV
Site Inspections
Work Assignment No. 12

BVWS Project 52012.505
January 18, 1995

Mr. Narindar Kumar
Chief, Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Draft Site Inspection Prioritization
Activated Metals
Cosby, Cocke County, TN
EPA ID No. TND003381308

Dear Mr. Kumar:

Enclosed please find one copy of the Draft Site Inspection Prioritization for the Activated Metals in Cosby, Cocke County, Tennessee. If you have any questions, please contact me at 404/643-2320.

Very truly yours,

BLACK & VEATCH Waste Science, Inc.

Victor Blix
Project Manager

fw
Enclosure

cc: Doug Thompson, EPA PO, w/o enclosures
Deborah Davidson, EPA CO, w/o enclosures
Earl Bozeman, EPA WAM, w/o enclosures

JAN 19 1995

BLACK & VEATCH Waste Science, Inc.

400 Northridge Road, Suite 350, Atlanta, Georgia 30350, (404) 594-2500, Fax: (404) 587-2930

U.S. Environmental Protection Agency
Activated Metals
Work Assignment 12

BVWS Project 52012.505
January 16, 1995

1/19/95
NFRAP Ref. to DEC

JAN 19 1995

Mr. Narindar Kumar, Chief
Site Assessment Section
U.S. Environmental Protection Agency
345 Courtland Street, NE
Atlanta, Georgia 30365

Subject: Site Inspection Prioritization
Activated Metals
Cosby, Cocke County, Tennessee
EPA ID TND003381308
#3568

Dear Mr. Kumar:

BLACK & VEATCH Waste Science, Inc. has been tasked by U.S. Environmental Protection Agency (EPA) to conduct a Site Inspection Prioritization for the Activated Metals site (the landfill) in Cosby, Cocke County, Tennessee. In accordance with the scope of work, a preliminary Hazard Ranking System (HRS) score was prepared to determine the need for future activities at the site.

The landfill is located off State Highway 32 and approximately 1.25 miles northeast of Cosby, Cocke County, Tennessee (Refs. 1; 2). More specifically, the landfill is geographically located at 35° 50' 03" north latitude and 83° 14' 43" west longitude (Ref. 2). Land use within a 4-mile radius of the landfill is primarily rural/residential (Ref. 2).

The 1.03-acre landfill near Cosby, is owned by the estate of A.J. King of Sevierville, Tennessee, and was utilized from 1965 until 1979 by the Activated Metals and Chemicals Company, located in Sevierville, Tennessee, to dispose of facility generated wastes from their processes (Refs. 1, p. 2; 3, p. 3; 4, p. 3). These wastes were accumulated from cleaning sodium aluminate crystalization tanks and consisted of approximately 72,800 kilograms per year of aluminate sludge, and 6,000 pounds of nickel catalyst (Ref. 3, pp. 1, 2). The aluminate sludge consists of sodium aluminate, sodium hydroxide, and aluminum hydroxide (Ref. 3, p. 2).

SUPERFUND RECORD CENTER

DOCUMENT TRANSMITTAL FORM FOR SAS

DATE: 8/23

SITE NAME: Activated Metals

SITE ID NUMBER: TND003781307

SAM NAME: RM

CHECK TYPE OF DOCUMENT:

___ *SITE DISCOVERY INFO* ___ *ESI PHASE II*

___ *PA* ___ *HRS PACKAGE*

___ *SI* ___ *CONFIDENTIAL*

X *SIP* ___ *NEW SITE*

___ *ESI PHASE I* ___ *OTHER* _____

_____

SPECIAL INSTRUCTION: _____

_____

***** RECORD CENTER USE ONLY *****

CHECKED IN BY: _____ **DATE:** _____

FILED BY: _____ **DATE:** _____

The Tennessee Department of Solid Waste Management (TDSWM), EPA, and the Sevier County Health Department, met with Mr. Andrew J. King III, a co-owner of the Activated Metals and Chemicals Company on March 30, 1979 (Refs. 5, p. 1; 6, p. 1). At this meeting, Mr. King agreed to: excavate all of the waste and contaminated soil at the site under the supervision of the TDSWM; collect a sample of the material and analyses, and if suitable, dispose of the waste and contaminated soil in the local sanitary landfill. If the waste and soil was considered unsuitable by analyses, disposal was to occur in a certified hazardous waste landfill (Ref. 5, pp. 1, 2). All of the waste was to be excavated by April 6, 1979 (Ref. 5, p. 2). The waste was removed under the supervision of the TDSWM (Ref. 6). Available file material does not indicate that any formal sampling events ever took place at the landfill. The landfill is not listed in the Resource Conservation and Recovery Information System database (Ref. 7).

It is assumed that potable water within a 4-mile radius of the landfill is supplied by private wells. The nearest private drinking water well is located approximately 700 feet southeast of the landfill (Ref. 2). The estimated population within the 4-mile radius of the landfill using groundwater is radially distributed as follows: 0 - 0.25 mile, 5 persons; 0.25 - 0.50 mile, 39 persons; 0.50 - 1 mile, 126 persons; 1 - 2 miles, 364 persons; 2 - 3 miles, 849 persons; and 3 - 4 miles, 864 persons (Refs. 2; 8).

The site was assumed to lie within the 100-year floodplain (Ref. 9). Surface water from the landfill flows into Cosby Creek located adjacent to the northwest border of the site. Cosby Creek flows northeast for approximately 5.5 miles where it converges with Pigeon River. From the point of entry into Pigeon River, the surface water pathway continues north completing the surface water migration pathway (Ref. 2). There are no known drinking water intakes located along the surface water migration pathway (Ref. 10, p. 39). These water bodies are utilized for fishing and recreational purposes (Ref. 10, p. 39). The estimated flow rate of Cosby Creek is 27.3 cubic feet per second (cfs) (Ref. 11, p. 92). There were no wetlands or endangered species identified along the surface water pathway (Refs. 2; 12).

There are approximately 2,247 residents within a 4-mile radius of the site (Refs. 2; 8). The estimated population within the 4-mile radius of the site is distributed as follows: 0 - 0.25 mile, 5 persons; 0.25 - 0.50 mile, 39 persons; 0.50 - 1 mile, 126

persons; 1 - 2 miles, 364 persons; 2 - 3 miles, 849 persons; 3 - 4 miles, 864 persons (Refs. 2; 8). The nearest residence is approximately 700 feet southeast of the landfill (Ref. 2). No wetlands were identified within the 4-mile radius (Ref. 2). No endangered species were identified within 4-mile radius of the site (Ref. 12).

Based on the presence of minimal potential receptors in all pathways, no further action is recommended for the Activated Metals site.

Attached are all references collected during this investigation. If you have any questions or comments, please contact me at (404) 643-2321 or Victor Blix at (404) 643-2320.

Sincerely,

BLACK & VEATCH Waste Science, Inc.

Paul F. Moisan

Paul F. Moisan
Site Manager

Enclosure

References

1. Potential Hazardous Waste Site Preliminary Assessment for Activated Metals, Cosby, Cocke County, Tennessee. Prepared by the Tennessee Division of Solid Waste Management.

2. U.S. Geological Survey, 7.5 minute series Topographic Quadrangle Maps of Tennessee: Hartford, TENN-N.C., 1940 (Photorevised [PR] 1968), Newport, TENN, 1961, Chestnut Hill, TENN, 1961 (PR 1980), Jones Cove, TENN, 1940 (PR 1978); scale 1:24,000.

3. Potential Hazardous Waste Site Preliminary Assessment (EPA Form 2070-12), for Activated Metals. Filed by Charles R. Rush, Tennessee Department of Health & Environment, Division of Superfund, August 29, 1986.

4. Potential Hazardous Waste Site Site Inspection Report (EPA Form T2070-3), for Activated Metals & Chemicals. Prepared by Ron W. Joyner, Tennessee Department of Health & Envrionment, February 13, 1980.

5. Bobby W. Morrison, Tennessee Division of Solid Waste Management, letter to Mr. Andrew James King III, Activated Metals and Chemicals Company, April 2, 1979. Subject: Meeting of March 30, 1979.

6. John E. Dickinson, Hazardous Waste Coordinator, U.S. Environmental Protection Agency, letter to Mrs. Margaret W. Crane, May 18, 1979. Subject: Clean-up operations at the Activated Metals site.

7. Environmental Protection Agency, RCRA Notifiers List, Region IV Merge Database.

8. U.S. Department of Commerce, Proof Copy of Table Generated for 1990, CPH-1-44: Summary Population and Housing Characteristics, issued by Bureau of Census, April 1991.

9. Federal Emergency Management Agency Flood Insurance Rate Map, Panel Number 47029C0090 C, for Cocke County, Tennessee and Incorporated Areas, January 6, 1988.

10. Tennessee Water Quality Control Board, Department of Health and Environment, Tennessee's Water Quality Criteria and Stream Use Classifications for Interstate and Intrastate Streams, Nashville, Tennessee, February, 1987.

11. J.F. Lowery, et al., Water Resources Data-Tennessee-Water Year 1986, Water Data Report TN-86-1, (Nashville, TN: U.S. Geological Survey, 1987).

12. U.S. Fish and Wildlife Service, Endangered and Threatened Species of the Southeastern United States (Atlanta, Georgia, 1992).

CONFIDENTIAL
Hazard Ranking System Preliminary Score
for
ACTIVATED METALS
Cosby, Cocke County, Tennessee
EPA ID TND003381308

The preliminary HRS score for the Activated Metals site was calculated using the Site Inspection Worksheets. Pathways evaluated include groundwater migration, surface water migration, soil exposure, and air migration. The score reflects a Hazardous Waste Quantity value of 10 for all pathways, based on the estimated area of the landfill, approximately 1.03 acres. The area of the landfill was estimated from available file material (150 feet by 300 feet). Waste characteristic values were derived based on a release of nickel. Because of limited file material, a "worst case" scenario was assumed to score this site.

Since no formal groundwater sampling has occurred at the site, the groundwater migration pathway was evaluated on a "worst case" scenario based upon an observed release to groundwater. Non-karst mobility factors were used for nickel, and non-karst target values were used for the aquifer. All residents within a 4-mile radius of the site utilize private wells for potable water, with the nearest private well located approximately 700 feet southeast of the site. The groundwater pathway score was limited by low target values.

The surface water migration pathway HRS score was based upon an observed release to Cosby Creek. No surface water intakes were noted along the surface water pathway. However, the pathway is utilized for recreational fishing. No endangered species or wetlands were noted along this pathway. The surface water pathway score was limited by low target values.

The soil exposure pathway HRS score was based upon an observed release to surficial soils and target values derived from nearby residential populations. The site is inactive with no workers. The soil exposure score was limited by low target values.

The air pathway HRS score was based upon a potential to release and a target value derived from potential populations. No sensitive environment targets were identified within 4-miles of the site.

HRS SCORING SUMMARY

S_{gw}	=	2.17
S_{sw}	=	0.24
S_{so}	=	0.00
S_{air}	=	0.13

OVERALL SCORE = 1.09

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

GROUND WATER MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

	Likelihood of Release to an Aquifer	Maximum Value	Value Assigned	
1.	Observed Release	550	550	
2.	Potential to Release			
	2a. Containment	10	-	
	2b. Net Precipitation	10	-	
	2c. Depth to Aquifer	5	-	
	2d. Travel Time	35	-	
	2e. Potential to Release [lines 2a x (2b + 2c + 2d)]	500	-	
	Likelihood of Release (higher of lines 1 and 2e)	550		550
	Waste Characteristics			
4.	Toxicity/Mobility	a	100	
5.	Hazardous Waste Quantity	a	10	
6.	Waste Characteristics	100		6
	Targets			
7.	Nearest Well	50	20	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	29.3	
	8d. Population (lines 8a + 8b + 8c)	b	29.3	
9.	Resources	5	5	
10.	Wellhead Protection Area	20	0	
11.	Targets (lines 7 + 8d + 9 + 10)	b		54.3
	Ground Water Migration Score for an Aquifer			
12.	Aquifer Score [(lines 3 x 6 x 11)/82,500][c]	100		2.17
	Ground Water Migration Pathway Score			
13.	Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100		2.17

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor Categories and Factors		Maximum Value	Value Assigned	
DRINKING WATER THREAT				
Likelihood of Release				
1.	Observed Release	550	550	
2.	Potential Release by Overland Flow			
2a.	Containment	10	-	
2b.	Runoff	25	-	
2c.	Distance to Surface Water	25	-	
2d.	Potential to Release by Overland Flow [lines 2a x (2b + 2c)]	500	-	
3.	Potential to Release by Flood			
3a.	Containment (Flood)	10	-	
3b.	Flood Frequency	50	-	
3c.	Potential to Release by Flood (lines 3a x 3b)	500	-	
4.	Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	-	
5.	Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics				
6.	Toxicity/Persistence	a	100	
7.	Hazardous Waste Quantity	a	10	
8.	Waste Characteristics	100		6
Targets				
9.	Nearest Intake	50	0	
10.	Population			
10a.	Level I Concentrations	b	0	
10b.	Level II Concentrations	b	0	
10c.	Potential Contamination	b	0	
10d.	Population (lines 10a + 10b + 10c)	b	0	
11.	Resources	5	5	
12.	Targets (lines 9 + 10d + 11)	b		5
Drinking Water Threat Score				
13.	Drinking Water Threat Score [(lines 5 x 8 x 12)/82,500, subject to a maximum of 100)	100		0.20

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

(continued)

Factor Categories and Factors	Maximum Value	Value Assigned	
HUMAN FOOD CHAIN THREAT			
Likelihood of Release			
14. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics			
15. Toxicity/Persistence/Bioaccumulation	a	50	
16. Hazardous Waste Quantity	a	10	
17. Waste Characteristics	1,000		3
Targets			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentrations	b	0	
19b. Level II Concentrations	b	0	
19c. Potential Human Food Chain Contamination	b	2	
19d. Population (lines 19a + 19b + 19c)	b	2	
20. Targets (lines 18 + 19d)			2
Human Food Chain Threat Score			
21. Human Food Chain Threat Score [(lines 14 x 17 x 20)/82,5000, subject to a maximum of 100)	100		0.04
ENVIRONMENTAL THREAT			
Likelihood of Release			
22. Likelihood of Release (same value as line 5)	550		550

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

(continued)

Factor Categories and Factors		Maximum Value	Value Assigned	
ENVIRONMENTAL THREAT, (concluded)				
Waste Characteristics				
23.	Ecosystem Toxicity/Persistence/Bioaccumulation	a	5,000	
24.	Hazardous Waste Quantity	a	10	
25.	Waste Characteristics	1,000		10
26.	Sensitive Environments			
	26a. Level I Concentrations	b	0	
	26b. Level II Concentrations	b	0	
	26c. Potential Contamination	b	0	
	26d. Sensitive Environments (lines 26a + 26b + 26c)	b	0	
Targets				
27.	Targets (value from line 26d)			0
Environmental Threat Score				
28.	Environmental Threat Score [(lines 22 x 25 x 27)/82,500, subject to a maximum of 60]	60		0.00
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE FOR A WATERSHED				
29.	Watershed Score[c] (lines 13 + 21 + 28, subject to a miximum of 100)	100		0.24
SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORE				
30.	Component Score (S_{oF})[c] (highest score from line 29 for all watersheds evaluated, subject to a maximum of 100)	100		0.24

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] Do not round to nearest integer.

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

SOIL EXPOSURE PATHWAY SCORESHEET

Factor Categories and Factors		Maximum Value	Value Assigned	
RESIDENT POPULATION THREAT				
	Likelihood of Exposure			
1.	Likelihood of Exposure	550		550
	Waste Characteristics			
2.	Toxicity	a	100	
3.	Hazardous Waste Quantity	a	10	
4.	Waste Characteristics	100		6
	Targets			
5.	Resident Individual	50	0	
6.	Resident Population			
	6a. Level I Concentrations	b	0	
	6b. Level II Concentrations	b	0	
	6c. Resident Population (lines 6a + 6b)	b	0	
7.	Workers	15	0	
8.	Resources	5	0	
9.	Terrestrial Sensitive Environments	c	0	
10.	Targets (lines 5 + 6c + 7 + 8 + 9)	b		0
	Resident Population Threat Score			
11.	Resident Population Threat (lines 1 x 4 x 10)/82,500	b		0.00
NEARBY POPULATION THREAT				
	Likelihood of Exposure			
12.	Attractiveness/Accessibility	100	25	
13.	Area of Contamination	100	20	
14.	Likelihood of Exposure	500		5
	Waste Characteristics			
15.	Toxicity	a	100	
16.	Hazardous Waste Quantity	a	10	
17.	Waste Characteristics	100		6

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

SOIL EXPOSURE PATHWAY SCORESHEET

(contiued)

Factor Categories and Factors		Maximum Value	Value Assigned	
NEARBY POPULATION THREAT, (continued)				
	Targets			
18.	Nearby Individual	1	1	
19.	Population Within 1 Mile	b	0.18	
20.	Targets (lines 18 +19)	b		1.18
	Nearby Population Threat Score			
21.	Nearby Population Threat (lines 14 x 17 x 20)	b		0.00
SOIL EXPOSURE PATHWAY SCORE				
22.	Soil Exposure Pathway Score[d] (S_s), (lines [11 + 21] subject to a maximum of 100)	100		0.00

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

Site Name: Activated Metals

Location: Cosby, Cocke County, Tennessee

AIR MIGRATION PATHWAY SCORESHEET

FACTOR CATEGORIES AND FACTORS

	Likelihood of Release	Maximum Value	Value Assigned	
1.	Observed Release	550	0	
2.	Potential to Release			
	2a. Gas Potential to Release	500	500	
	2b. Particulate Potential to Release	500	-	
	2c. Potential to Release (higher of lines 2a and 2b)	500	500	
3.	Likelihood of Release (higher of lines 1 and 2c)	a		500
	Waste Characteristics			
4.	Toxicity/Mobility	a	0.008	
5.	Hazardous Waste Quantity	a	10	
6.	Waste Characteristics	100		1
	Targets			
7.	Nearest Individual	50	20	
8.	Population			
	8a. Level I Concentrations	b	0	
	8b. Level II Concentrations	b	0	
	8c. Potential Contamination	b	1.17	
	8d. Population (lines 8a + 8b + 8c)	b	1.17	
9.	Resources	5	0	
10.	Sensitive Environments			
	10a. Actual Contamination	c	0	
	10b. Potential Contamination	c	0	
	10c. Sensitive Environments (lines 10a + 10b)	c	0	
11.	Targets (lines 7 + 8d + 9 + 10c)	b		21.17
	Air Migration Pathway Score			
12.	Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d]	100		0.13

[a] Maximum value applies to waste characteristics category.
[b] Maximum value not applicable.
[c] No specific maximum value applies to factor. However pathway score based solely on sensitive environments is limited to maximum of 60.
[d] Do not round to nearest integer.

SITE INSPECTION WORKSHEETS

CERCLIS IDENTIFICATION NUMBER
TND003381302

SITE LOCATION			
SITE NAME: LEGAL, COMMON, OR DESCRIPTIVE NAME OF SITE Activated Metals			
STREET ADDRESS, ROUTE, OR SPECIFIC LOCATION IDENTIFIER Off of Hwy. 32			
CITY Cosby	STATE TN	ZIP CODE 37722	TELEPHONE ( )
COORDINATES: LATITUDE and LONGITUDE	TOWNSHIP, RANGE, AND SECTION		

OWNER/OPERATOR IDENTIFICATION					
OWNER Estate of: A. J. King			OPERATOR		
OWNER ADDRESS P.O. Box 32			OPERATOR ADDRESS		
CITY Sevierville			CITY		
STATE TN.	ZIP CODE 37862	TELEPHONE (615) 453-7177	STATE	ZIP CODE	TELEPHONE ( )

SITE EVALUATION		
AGENCY/ORGANIZATION		
INVESTIGATOR		
CONTACT		
ADDRESS		
CITY	STATE	ZIP CODE
TELEPHONE ( )		

GENERAL INFORMATION

Site Description and Operational History: Provide a brief description of the site and its operational history. State the site name, owner, operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note whether these activities are documented or alleged. Identify all source types and prior spills, floods, or fires. Summarize highlights of the PA and other investigations. Cite references.

See Insert

GENERAL INFORMATION (continued)

Site Sketch: Provide a sketch of the site. Indicate all pertinent features of the site and nearby environments including sources of wastes, areas of visible and buried wastes, buildings, residences, access roads, parking areas, fences, fields, drainage patterns, water bodies, vegetation, wells, sensitive environments, and other features.

See attached reference

GENERAL INFORMATION (continued)

Source Descriptions: Describe all sources at the site. Identify source type and relate to waste disposal operations. Provide source dimensions and the best available waste quantity information. Describe the condition of sources and all containment structures. Cite references.

SOURCE TYPES

Landfill: A man-made (by excavation or construction) or natural hole in the ground into which wastes have come to be disposed by backfilling, or by contemporaneous soil deposition with waste disposal.

Surface Impoundment: A natural topographic depression, man-made excavation, or diked area, primarily formed from earthen materials (lined or unlined) and designed to hold an accumulation of liquid wastes, wastes containing free liquids, or sludges not backfilled or otherwise covered; depression may be wet with exposed liquid or dry if deposited liquid has evaporated, volatilized or leached; structures that may be described as lagoon, pond, aeration pit, settling pond, tailings pond, sludge pit; also a surface impoundment that has been covered with soil after the final deposition of waste materials (i.e., buried or backfilled).

Drum: A portable container designed to hold a standard 55-gallon volume of wastes.

Tank and Non-Drum Container: Any device, other than a drum, designed to contain an accumulation of waste that provides structural support and is constructed primarily of fabricated materials (such as wood, concrete, steel, or plastic); any portable or mobile device in which waste is stored or otherwise handled.

Contaminated Soil: An area or volume of soil onto which hazardous substances have been spilled, spread, disposed, or deposited.

Pile: Any non-containerized accumulation above the ground surface of solid, non-flowing wastes; includes open dumps. Some types of waste piles are:

- Chemical Waste Pile: A pile consisting primarily of discarded chemical products, by-products, radioactive wastes, or used or unused feedstocks.
- Scrap Metal or Junk Pile: A pile consisting primarily of scrap metal or discarded durable goods (such as appliances, automobiles, auto parts, batteries, etc.) composed of materials containing hazardous substances.
- Tailings Pile: A pile consisting primarily of any combination of overburden from a mining operation and tailings from a mineral mining, beneficiation, or processing operation.
- Trash Pile: A pile consisting primarily of paper, garbage, or discarded non-durable goods containing hazardous substances.

Land Treatment: Landfarming or other method of waste management in which liquid wastes or sludges are spread over land and tilled, or liquids are injected at shallow depths into soils.

Other: Sources not in categories listed above.

Excerpt from Preliminary Resolutions - 3 pages.

For some sites, the manner in which the waste was deposited (e.g., creation of a waste pile) would be a primary defining characteristic and it would be appropriate to score the source type as a waste pile.

S-45 **Issue:** What are some definitions that can be used to assist in identifying and characterizing the source(s) at a site?

Preliminary Resolution: The following definitions are provided:

Active Fire Area: An area that is presently burning or smoldering and which, without remedial action, will continue to do so intently.

Buried/Below-ground Containers or Tanks: A container or tank the entire surface area of which is situated completely below the surface and which is not visible; however, a buried/below-ground tank may have a small fraction of its associated piping above the surface.

Buried/Backfilled Surface Impoundment: A surface impoundment that has been completely covered with soil after final deposition of waste materials.

Burn Pit: An uncovered area on or on the land surface that was at one time used to burn waste materials or was otherwise significantly inflamed but is not presently burning.

Containers or Tanks: (1) Any stationary device designed to contain an accumulation of waste, which is constructed primarily of non-earthen materials (such as wood, concrete, steel, or plastic) which provides structural support. (2) Any portable device in which waste is stored or otherwise handled.

Contaminated Soil (excluding land treatment): (1) An area of soil that contains concentrations of a hazardous substance significantly above background. Evidence that the substance detected is related to the site must be provided to substantiate use of this descriptor. (2) An area on which available evidence demonstrates that hazardous substances were spilled. Note: somewhat similar to area of observed contamination but without the requirement that the hazardous substance be located within two feet of the surface.

Landfarm/Land treatment: Landfarming or land treatment is a method of waste management in which liquid waste or sludges are spread over land and tilled. It also applies to the shallow infection of liquids. The distinguishing characteristics of landfarms and land treatment facilities is the shallow injection or tilling of the soil.

Landfill: A landfill may be either a cleared area on the ground surface or a man-made or natural hole in the ground, containing wastes. The landfill may have been backfilled with the soil either after or contemporary with the waste disposal, covering the wastes from view. The landfill may have been formed either by excavating the hole or by forming earthen walls around a cleared area. Due to weathering, erosion, and similar phenomena, however, once-

buried wastes in a landfill may become exposed, e.g., partially buried drums. The contents of a landfill may include nearly any or all types of wastes including buried drums.

Piles (by type):

Chemical Waste Pile: A pile consisting primarily of discarded chemical products (whether marketable or not), by-products, or unused feedstocks.

Scrap Metal or Junk Pile: A pile consisting primarily of scrap metal or discarded durable goods such as appliances, automobiles or auto parts, and furniture.

Tailings Pile: A pile consisting primarily of any combination of overburden from a mining operation and tailings from a mineral mining, beneficiation, or processing operation.

Trash Pile: A pile consisting of primarily paper, garbage, or discarded non-durable goods such as food packaging (e.g., "refuse").

Other: A term reserved for use when a pile of indeterminate origin has accumulated and is shown to contain certain hazardous substances, contaminants, pollutants, or radionuclides.

Surface Impoundment: A natural topographic depression, man-made excavation, bermed, or diked area, primarily formed from earthen materials (lined or unlined) which was designed to hold an accumulation od liquid wastes, wastes containing free liquids, or sludges that were not backfilled or otherwise covered. The distinguishing characteristics of a surface impoundment are the emphasis on liquid waste and the general lack of soil cover. Two types of surface impoundments are distinguished: those at which the deposited liquid has evaporated, volatilized, or leached (dry) and those with exposed liquid (other). Synonymous terms include lagoon pond, aeration pit, settling pond, and tailings pond.

S-46 **Issue:** What are examples of "other" source types?

Preliminary Resolution: Anything not specifically listed or that does not clearly fit into one of the listed source types, e.g., contaminated buildings, contaminated surface water sediments with no identified source, and contaminated equipment. Additional other source types may include: storm drains, dry wells, injection wells, ground water plumes with no identified source, radioactively contaminated equipment, etc. (See also Preliminary Resolution S-48.)

S-47 **Issue:** Are seeps and leachate considered sources?

Preliminary Resolution: Seeps and leachate are migration from sources, nor areas of deposition, and thus are not sources for the migration pathways. However, there is a

good probability that the soils beneath seeps and leachate are contaminated. For the purposes of scoring the soil exposure pathway, therefore, seeps and leachate of hazardous substances can be considered observed contamination of the surface.

Seeps and leachate are also useful in attributing observed releases to sources. In some cases, seeps and leachate have been used to establish observed releases by direct observation to ground water and/or surface water.

S-48 **Issue:** Are buildings contaminated with radioactive materials considered sources? If so, what type?

Preliminary Resolution: Yes, they would be in the "other" category of sources unless they fit a specific description (e.g., demolished building could be a pile).

S-49 **Issue:** Within a large source (e.g., landfill), what should be used as the starting point for measuring target distance limits?

Preliminary Resolution: For measuring target distances in pathways, use the source boundaries, which may be established in various ways (e.g., photographs, fill above grade). The exception would be ground water plumes and surface water sediments with no identified source.

- For such ground water plumes, use the center of the observed area of ground water contamination, as specified in Section 3.0.1.1 of the HRS rule.
- For such surface water sediments, if there is a clearly defined direction of flow, use the point of observed sediment contamination that is farthest upstream as specified in Section 4.1.1.2 of the HRS rule. If there is no clearly defined direction of flow, use the center of the area of observed sediment contamination as specified in Section 4.1.1.2 of the rule.

S-50 **Issue:** How is thickness of cover measured – maximum or minimum?

Preliminary Resolution: For purposes of scoring containment, thickness of cover is measured at the point of minimum thickness. In some cases, cracks may indicate a good place to measure the minimum thickness.

GENERAL INFORMATION (continued)

Source Description: Include description of containment per pathway for ground water (see HRS Table 3-2), surface water (see HRS Table 4-2), and air (see HRS Tables 6-3 and 6-9).

Containment = 10

Hazardous Waste Quantity (HWQ) Calculation: SI Tables 1 and 2 (See HRS Tables 2-5, 2-6, and 5-2).

1.03 acre Landfill

Tier D < 7.8 acres

Attach additional pages, if necessary

HWQ = 10

SI TABLE 1: HAZARDOUS WASTE QUANTITY (HWQ) SCORES FOR SINGLE SOURCE SITES AND FORMULAS FOR MULTIPLE SOURCE SITES

		Single Source Sites (assigned HWQ scores)	
(Column 1) TIER	(Column 2) Source Type	(Column 3) HWQ = 10	(Column 4) HWQ = 100
A Hazardous Constituent Quantity	N/A	HWQ = 1 if Hazardous Constituent Quantity data are complete HWQ = 10 if Hazardous Constituent Quantity data are not complete	>100 to 10,000 lbs
B Hazardous Wastestream Quantity	N/A	≤ 500,000 lbs	>500,000 to 50 million lbs
C Volume	Landfill	≤ 6.75 million ft^3 ≤ 250,000 yd^3	>6.75 million to 675 million ft^3 >250,000 to 25 million yd^3
	Surface impoundment	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
	Drums	≤1,000 drums	>1,000 to 100,000 drums
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons
	Contaminated soil	≤6.75 million ft^3 ≤250,000 yd^3	>6.75 million to 675 million ft^3 >250,000 to 25 million yd^3
	Pile	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
	Other	≤6,750 ft^3 ≤250 yd^3	>6,750 to 675,000 ft^3 >250 to 25,000 yd^3
D Area	Landfill	≤340,000 ft^2 ≤7.8 acres	>340,000 to 34 million ft^2 >7.8 to 780 acres
	Surface impoundment	≤1,300 ft^2 ≤0.029 acres	>1,300 to 130,000 ft^2 >0.029 to 2.9 acres
	Contaminated soil	≤3.4 million ft^2 ≤78 acres	> 3.4 million to 340 million ft^2 > 78 to 7,800 acres
	Pile	≤1,300 ft^2 ≤0.029 acres	>1,300 to 130,000 ft^2 >0.029 to 2.9 acres
	Land treatment	≤27,000 ft^2 ≤0.62 acres	>27,000 to 2.7 million ft^2 >0.62 to 62 acres

1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons

TABLE 1 (CONTINUED)

Single Source Sites (assigned HWQ scores)		Multiple Source Sites		
(Column 5) HWQ = 10,000	(Column 6) HWQ = 1,000,000	(Column 7) Divisors for Assigning Source WQ Values	(Column 2) Source Type	(Column 1) TIER
>10,000 to 1 million lbs	> 1 million lbs	lbs ÷ 1	N/A	A Hazardous Constituent Quantity
>50 million to 5 billion lbs	> 5 billion lbs	lbs ÷ 5,000	N/A	B Hazardous Wastestream Quantity
>675 million to 67.5 billion ft^3 >25 million to 2.5 billion yd^3	> 67.5 billion ft^3 > 2.5 billion yd^3	ft^3 ÷ 67,500 yd^3 ÷ 2,500	Landfill	C Volume
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Surface Impoundment	
>100,000 to 10 million drums	> 10 million drums	drums ÷ 10	Drums	
>5 million to 500 million gallons	> 500 million gallons	gallons ÷ 500	Tanks and non-drum containers	
>675 million to 67.5 billion ft^3 >25 million to 2.5 billion yd^3	> 67.5 billion ft^3 > 2.5 billion yd^3	ft^3 ÷ 67,500 yd^3 ÷ 2,500	Contaminated Soil	
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Pile	
>675,000 to 67.5 million ft^3 >25,000 to 2.5 million yd^3	> 67.5 million ft^3 > 2.5 million yd^3	ft^3 ÷ 67.5 yd^3 ÷ 2.5	Other	
>34 million to 3.4 billion ft^2 >780 to 78,000 acres	> 3.4 billion ft^2 >78,000 acres	ft^2 ÷ 3,400 acres ÷ 0.078	Landfill	D Area
>130,000 to 13 million ft^2 >2.9 to 290 acres	> 13 million ft^2 > 290 acres	ft^2 ÷ 13 acres ÷ 0.00029	Surface Impoundment	
> 340 million to 34 billion ft^2 > 7,800 to 780,000 acres	> 34 billion ft^2 > 780,000 acres	ft^2 ÷ 34,000 acres ÷ 0.78	Contaminated Soil	
> 130,000 to 13 million ft^2 > 2.9 to 290 acres	> 13 million ft^2 > 290 acres	ft^2 ÷ 13 acres ÷ 0.00029	Pile	
>2.7 million to 270 million ft^2 >62 to 6,200 acres	> 270 million ft^2 > 6,200 acres	ft^2 ÷ 270 acres ÷ 0.0062	Land Treatment	

1 ton = 2,000 pounds = 1 cubic yard = 4 drums = 200 gallons

HAZARDOUS WASTE QUANTITY (HWQ) CALCULATION

For each migration pathway, evaluate HWQ associated with sources that are available (i.e., incompletely contained) to migrate to that pathway. (Note: If *Actual Contamination Targets* exist for ground water, surface water, or air migration pathways, assign the calculated HWQ score or 100, whichever is greater, as the HWQ score for that pathway.) For each source, evaluate HWQ for one or more of the four tiers (SI Table 1; HRS Table 2-5) for which data exist: constituent quantity, wastestream quantity, source volume, and source area. Select the tier that gives the highest value as the source HWQ. Select the source volume HWQ rather than source area HWQ if data for both tiers are available.

Column 1 of SI Table 1 indicates the quantity tier. Column 2 lists source types for the four tiers. Columns 3, 4, 5, and 6 provide ranges of waste amount for sites with only one source, corresponding to HWQ scores at the tops of the columns. Column 7 provides formulas to obtain source waste quantity values at sites with multiple sources.

1. Identify each source type.
2. Examine all waste quantity data available for each source. Record constituent quantity and waste stream mass or volume. Record dimensions of each source.
3. Convert source measurements to appropriate units for each tier to be evaluated.
4. For each source, use the formulas in the last column of SI Table 1 to determine the waste quantity value for each tier that can be evaluated. Use the waste quantity value obtained from the highest tier as the quantity value for the source.
5. Sum the values assigned to each source to determine the total site waste quantity.
6. Assign HWQ score from SI Table 2 (HRS Table 2-6).

Note these exceptions to evaluate soil exposure pathway HWQ (see HRS Table 5-2):

- The divisor for the area (square feet) of a landfill is 34,000.
- The divisor for the area (square feet) of a pile is 34.
- Wet surface impoundments and tanks and non-drum containers are the only sources for which volume measurements are evaluated for the soil exposure pathway.

SI TABLE 2: HWQ SCORES FOR SITES

Site WQ Total	HWQ Score
0	0
1[a] to 100	1[b]
> 100 to 10,000	100
> 10,000 to 1 million	10,000
> 1 million	1,000,000

[a] If the WQ total is between 0 and 1, round it to 1.
[b] If the hazardous constituent quantity data are not complete, assign the score of 10.

SI TABLE 3: WASTE CHARACTERIZATION WORKSHEET

Site Name: _____ References _____

Sources:

1. _____ 4. _____ 7. _____
2. _____ 5. _____ 8. _____
3. _____ 6. _____ 9. _____

SOURCE	HAZARDOUS SUBSTANCE	TOXICITY	GROUND WATER PATHWAY		SURFACE WATER PATHWAY											AIR Pathway
					OVERLAND/FLOOD MIGRATION							GROUND WATER TO SURFACE WATER				
			GW Mobility (HRS Table 3-8)	Tox/ Mobility Value (HRS Table 3-9)	Per (HRS Tables 4-10 and 4-11)	Tox/Per Value (HRS Table 4-12)	Bioac Pot. (HRS Table 4-15)	Tox/ Pers/ Bioac Value (HRS Table 4-16)	Ecotox (HRS Table 4-19)	Ecotox/ Pers (HRS Table 4-20)	Ecotox/ Pers/ Bioacc Value (HRS Table 4-21)	Tox/ Mob/ Pers Value (HRS Table 4-26)	Tox/ Mob/ Pers/ Bioacc Value (HRS Table 4-28)	Ecotox/ Mob/ Pers Value (HRS Table 4-29)	Ecotox/ Mob/ Per/ Bioacc Value (HRS Table 4-30)	Toxicity mobility
	Nickel	100	1	100	1.0	100	0.5	50	10	10	5,000					0.005

Ground Water Observed Release Substances Summary Table

On SI Table 4, list the hazardous substances associated with the site detected in ground water samples for that aquifer. Include only those substances directly observed or with concentrations significantly greater than background levels. Obtain toxicity values from the Superfund Chemical Data Matrix (SCDM). Assign mobility a value of 1 for all observed release substances regardless of the aquifer being evaluated. For each substance, multiply the toxicity by the mobility to obtain the toxicity/mobility factor value; enter the highest toxicity/mobility value for the aquifer in the space provided.

Ground Water Actual Contamination Targets Summary Table

If there is an observed release at a drinking water well, enter each hazardous substance meeting the requirements for an observed release by well and sample ID on SI Table 5 and record the detected concentration. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For MCL and MCLG benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the population using the well as a Level I target. If these percentages are less than 100% or all are N/A, evaluate the population using the well as a Level II target for that aquifer.

SI TABLE 4: GROUND WATER OBSERVED RELEASE SUBSTANCES (BY AQUIFER)

Sample ID	Hazardous Substance	Bckgrd. Conc.	Toxicity/ Mobility	References
		Highest Toxicity/Mobility		

SI TABLE 5: GROUND WATER ACTUAL CONTAMINATION TARGETS

Well ID: _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

Well ID: _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use within 4 Miles of the Site:
Describe generalized stratigraphy, aquifers, municipal and private wells

Show Calculations of Ground Water Drinking Water Populations for each Aquifer:
Provide apportionment calculations for blended supply systems.
County average number of persons per household: 2.58 Reference _____

0 - 1/4 mile — 5 persons
1/4 - 1/2 mile — 39 persons
1/2 - 1 mile — 126 persons
1 - 2 miles — 364 persons
2 - 3 miles — 849 persons
3 - 4 miles — 864 persons

All persons on private wells.

GROUND WATER PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to the aquifer, assign a score of 550. Record observed release substances on SI Table 4.			
2. POTENTIAL TO RELEASE: Depth to aquifer: _____feet. If sampling data do not support a release to the aquifer, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Optionally, evaluate potential to release according to HRS Section 3.			
LR =	550	—	

TARGETS

Are any wells part of a blended system? Yes____ No_____ If yes, attach a page to show apportionment calculations.			
3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates that any target drinking water well for the aquifer has been exposed to a hazardous substance from the site, evaluate the factor score for the number of people served (SI Table 5). Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ **Total =**			
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water wells for the aquifer or overlying aquifers that are not exposed to a hazardous substance from the site; record the population for each distance category in SI Table 6a or 6b. Sum the population values and multiply by 0.1.	29.3		
5. NEAREST WELL: Assign a score of 50 for any Level I Actual Contamination Targets for the aquifer or overlying aquifer. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Targets exist, assign the Nearest Well score from SI Table 6a or 6b. If no drinking water wells exist within 4 miles, assign 0.	20		
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA for the aquifer, or if a ground water observed release has occurred within a WHPA, assign a score of 20; assign 5 if neither condition applies but a WHPA is within 4 miles; otherwise assign 0.	0		
7. RESOURCES: Assign a score of 5 if one or more ground water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Supply for commercial aquaculture • Supply for a major or designated water recreation area, excluding drinking water use	5	—	
Sum of Targets T=	54.3		

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS

SI Table 6a: Other Than Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category												Pop. Value	Ref.
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000		
0 to $\frac{1}{4}$ mile	5	(20)	(4)	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	4	
> $\frac{1}{4}$ to $\frac{1}{2}$ mile	39	18	2	11	(33)	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122	33	
> $\frac{1}{2}$ to 1 mile	126	9	1	5	17	(52)	167	523	1,669	5,224	16,684	52,239	166,835	522,385	52	
> 1 to 2 miles	364	5	0.7	3	10	30	(94)	294	939	2,939	9,385	29,384	93,845	293,842	94	
> 2 to 3 miles	849	3	0.5	2	7	21	(68)	212	678	2,122	6,778	21,222	67,777	212,219	68	
>3 to 4 miles	864	2	0.3	1	4	13	(42)	131	417	1,306	4,171	13,060	41,709	130,596	42	
Nearest Well =		20												Sum =	213	

SI TABLE 6 (From HRS TABLE 3-12): VALUES FOR POTENTIAL CONTAMINATION GROUND WATER TARGET POPULATIONS (continued)

SI Table 6b: Karst Aquifers

Distance from Site	Pop.	Nearest Well (choose highest)	Population Served by Wells within Distance Category												Pop. Value	Ref.
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1000	1001 to 3000	3001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000		
0 to $\frac{1}{4}$ mile		20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455		
> $\frac{1}{4}$ to $\frac{1}{2}$ mile		20	2	11	33	102	324	1,013	3,233	10,122	32,325	101,213	323,243	1,012,122		
> $\frac{1}{2}$ to 1 mile		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
> 1 to 2 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
> 2 to 3 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
>3 to 4 miles		20	2	9	26	82	261	817	2,607	8,163	26,068	81,623	260,680	816,227		
Nearest Well =														Sum =		

GROUND WATER PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS	Score	Data Type	Does not Apply
8. If any Actual Contamination Targets exist for the aquifer or overlying aquifers, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if no Actual Contamination Targets exist, assign the hazardous waste quantity score calculated for sources available to migrate to ground water.	10		
9. Assign the highest ground water toxicity/mobility value from SI Table 3 or 4.	100		
10. Multiply the ground water toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below: (from HRS Table 2-7)			

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

WC = 6

Multiply LR by T and by WC. Divide the product by 82,500 to obtain the ground water pathway score for each aquifer. Select the highest aquifer score. If the pathway score is greater than 100, assign 100.

GROUND WATER PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82{,}500} \qquad \frac{.55^{0} \times 54.3 \times 6}{82{,}500}$$

2.17

(Maximum of 100)

SURFACE WATER PATHWAY

Sketch of the Surface Water Migration Route:
Label all surface water bodies. Include runoff route and drainage direction, probable point of entry, and 15-mile target distance limit. Mark sample locations, intakes, fisheries, and sensitive environments. Indicate flow directions, tidal influence, and rate.

See file material

SURFACE WATER PATHWAY

Surface Water Observed Release Substances Summary Table

On SI Table 7, list the hazardous substances detected in surface water samples for the watershed, which can be attributed to the site. Include only those substances in observed releases (direct observation) or with concentration levels significantly above background levels. Obtain toxicity, persistence, bioaccumulation potential, and ecotoxicity values from SCDM. Enter the highest toxicity/persistence, toxicity/persistence/bioaccumulation, and ecotoxicity/persistence/ecobioaccumulation values in the spaces provided.

- TP = Toxicity x Persistence
- TPB = TP x bioaccumulation
- ETPB = EP x bioaccumulation (EP = ecotoxicity x persistence)

Drinking Water Actual Contamination Targets Summary Table

For an observed release at or beyond a drinking water intake, on SI Table 8 enter each hazardous substance by sample ID and the detected concentration. For surface water sediment samples detecting a hazardous substance at or beyond an intake, evaluate the intake as Level II contamination. Obtain benchmark, cancer risk, and reference dose concentrations for each substance from SCDM. For MCL and MCLG benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages of the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the population served by the intake as a Level I target. If the percentages are less than 100% or all are N/A, evaluate the population served by the intake as a Level II target.

SI TABLE 7: SURFACE WATER OBSERVED RELEASE SUBSTANCES

Sample ID	and concentration Hazardous Substance	Bckgrd. Conc.	Toxicity/ Persistence	Toxicity/ Persis./ Bioaccum	Ecotoxicity/ Persis/ Ecobloaccum	References
		Highest Values				

SI TABLE 8: SURFACE WATER DRINKING WATER ACTUAL CONTAMINATION TARGETS

Intake ID: _____ Sample Type _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

Intake ID: _____ Sample Type _____ Level I _____ Level II _____ Population Served _____ References _____

Sample ID	Hazardous Substance	Conc. (µg/L)	Benchmark Conc. (MCL or MCLG)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

SURFACE WATER PATHWAY

LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET

LIKELIHOOD OF RELEASE– OVERLAND/FLOOD MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7.	550	- Assum	1
2. POTENTIAL TO RELEASE: Distance to surface water: ____(feet) If sampling data do not support a release to surface water in the watershed, use the table below to assign a score from the table below based on distance to surface water and flood frequency.			

Distance to surface water <2500 feet	500
Distance to surface water >2500 feet, and:	
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

Optionally, evaluate surface water potential to release according to HRS Section 4.1.2.1.2

LR = 550

LIKELIHOOD OF RELEASE GROUND WATER TO SURFACE WATER MIGRATION	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to surface water in the watershed, assign a score of 550. Record observed release substances on SI Table 7. NOTE: Evaluate ground water to surface water migration only for a surface water body that meets all of the following conditions: 1) A portion of the surface water is within 1 mile of site sources having a containment factor greater than 0. 2) No aquifer discontinuity is established between the source and the above portion of the surface water body. 3) The top of the uppermost aquifer is at or above the bottom of the surface water. *Elevation of top of uppermost aquifer* _____ Elevation of bottom of surface water body _____			
2. POTENTIAL TO RELEASE: Use the ground water potential to release. Optionally, evaluate surface water potential to release according to HRS Section 3.1.2.			

LR = _____

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT WORKSHEET (CONTINUED)

DRINKING WATER THREAT TARGETS	Score	Data Type	Refs
Record the water body type, flow, and number of people served by each drinking water intake within the target distance limit in the watershed. If there is no drinking water intake within the target distance limit, assign 0 to factors 3, 4, and 5. Intake Name / Water Body Type / Flow / People Served _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Are any intakes part of a blended system? Yes _____ No _____ If yes, attach a page to show apportionment calculations. 3. ACTUAL CONTAMINATION TARGETS: If analytical evidence indicates a drinking water intake has been exposed to a hazardous substance from the site, list the intake name and evaluate the factor score for the drinking water population (SI Table 8). _____ , _____ Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ **Total =**	0		
4. POTENTIAL CONTAMINATION TARGETS: Determine the number of people served by drinking water intakes for the watershed that have not been exposed to a hazardous substance from the site. Assign the population values from SI Table 9. Sum the values and multiply by 0.1.	0		
5. NEAREST INTAKE: Assign a score of 50 for any Level I Actual Contamination Drinking Water Targets for the watershed. Assign a score of 45 if there are Level II targets for the watershed, but no Level I targets. If no Actual Contamination Drinking Water Targets exist, assign a score for the intake nearest the PPE from SI Table 9. If no drinking water intakes exist, assign 0.	0		
6. RESOURCES: Assign a score of 5 if one or more surface water resource applies; assign 0 if none applies. • Irrigation (5 acre minimum) of commercial food crops or commercial forage crops • Watering of commercial livestock • Ingredient in commercial food preparation • Major or designated water recreation area, excluding drinking water use	5		Assumed
SUM OF TARGETS T=	5		

SI TABLE 9 (From HRS Table 4-14): DILUTION-WEIGHTED POPULATION VALUES FOR POTENTIAL CONTAMINATION FOR SURFACE WATER MIGRATION PATHWAY

Type of Surface Water Body	Pop.	Nearest Intake	Number of people									Pop. Value
			0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	
Minimal Stream (<10 cfs)		20	0	4	17	53	164	522	1,633	5,214	16,325	
Small to moderate stream (10 to 100 cfs)		2	0	0.4	2	5	16	52	163	521	1,633	
Moderate to large stream (> 100 to 1,000 cfs)		0	0	0.04	0.2	0.5	2	5	16	52	163	
Large Stream to river (>1,000 to 10,000 cfs)		0	0	0.004	0.02	0.05	0.2	0.5	2	5	16	
Large River (> 10,000 to 100,000 cfs)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	16	
Very Large River (>100,000 cfs)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Shallow ocean zone or Great Lake (depth < 20 feet)		0	0	0	0.002	0.005	0.02	0.05	0.2	0.5	2	
Moderate ocean zone or Great Lake (Depth 20 to 200 feet)		0	0	0	0	0.001	0.002	0.005	0.02	0.05	0.2	
Deep ocean zone or Great Lake (depth > 200 feet)		0	0	0	0	0	0.001	0.003	0.008	0.03	0.08	
3-mile mixing zone in quiet flowing river (≥ 10 cfs)		10	0	2	9	26	82	261	817	2,607	8,163	
	Nearest Intake =										Sum =	

References _____

TABLE 4-14 (Concluded)

Type of Surface Water Body[b]	Number of People				
	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	3,000,001 to 10,000,000
Minimal stream (< 10 cfs)	52,137	163,246	521,360	1,632,455	5,213,590
Small to moderate stream (10 to 100 cfs)	5,214	16,325	52,136	163,245	521,359
Moderate to large stream (> 100 to 1,000 cfs)	521	1,633	5,214	16,325	52,136
Large stream to river (> 1,000 to 10,000 cfs)	52	163	521	1,632	5,214
Large river (> 10,000 to 100,000 cfs)	5	16	52	163	521
Very large river (> 100,000 cfs)	0.5	2	5	16	52
Shallow ocean zone or Great Lake (depth < 20 feet)	5	16	52	163	521
Moderate ocean zone or Great Lake (depth 20 to 200 feet)	0.5	2	5	16	52
Deep zone or Great Lake (depth > 200 feet)	0.3	1	3	8	26
3-mile mixing zone in quiet flowing river (≥ 10 cfs)	26,068	81,623	260,680	816,227	2,606,795

[a]Round the number of people to nearest integer. Do not round the assigned dilution-weighted population value to nearest integer.

[b]Treat each lake as a separate type of water body and assign it a dilution-weighted population value using the surface water body type with the same dilution weight from Table 4-13 as the lake. If drinking water is withdrawn from coastal tidal water or the ocean, assign a dilution-weighted population value to it using the surface water body type with the same dilution weight from Table 4-13 as the coastal tidal water or the ocean zone.

SURFACE WATER PATHWAY

Human Food Chain Actual Contamination Targets Summary Table

On SI Table 10, list the hazardous substances detected in sediment, aqueous, sessile benthic organism tissue, or fish tissue samples (taken from fish caught within the boundaries of the observed release) by sample ID and concentration. Evaluate fisheries within the boundaries of observed releases detected by sediment or aqueous samples as Level II, if at least one observed release substance has a bioaccumulation potential factor value of 500 or greater (see SI Table 7). Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For FDAAL benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate this portion of the fishery as subject to Level I concentrations. If the percentages are less than 100% or all are N/A, evaluate the fishery as a Level II target.

Sensitive Environment Actual Contamination Targets Summary Table

On SI Table 11, list each hazardous substance detected in aqueous or sediment samples at or beyond wetlands or a surface water sensitive environment by sample ID. Record the concentration. If contaminated sediments or tissues are detected at or beyond a sensitive environment, evaluate the sensitive environment as Level II. Obtain benchmark concentrations from SCDM. For AWQC/AALAC benchmarks, determine the highest percentage of benchmark of the substances detected in aqueous samples. If benchmark concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage equals or exceeds 100%, evaluate that part of the sensitive environment subject to Level I concentrations. If the percentage is less than 100%, or all are N/A, evaluate the sensitive environment as Level II.

SI TABLE 10: HUMAN FOOD CHAIN ACTUAL CONTAMINATION TARGETS FOR WATERSHED

Fishery ID: _____ Sample Type _____ Level I _____ Level II _____ References _____

Sample ID	Hazardous Substance	Conc. (mg/kg)	Benchmark Concentration (FDAAL)	% of Benchmark	Cancer Risk Concentration.	% of Cancer Risk Concentration	RfD	% of RfD
			Highest Percent		Sum of Percents		Sum of Percents	

SI TABLE 11: SENSITIVE ENVIRONMENT ACTUAL CONTAMINATION TARGETS FOR WATERSHED

Environment ID: _____ Sample Type _____ Level I _____ Level II _____ Environment Value _____

Sample ID	Hazardous Substance	Conc.. (µg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References
			Highest Percent		

Environment ID: _____ Sample Type _____ Level I _____ Level II _____ Environment Value _____

Sample ID	Hazardous Substance	Conc.. (µg/L)	Benchmark Concentration (AWQC or AALAC)	% of Benchmark	References
			Highest Percent		

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT WORKSHEET

HUMAN FOOD CHAIN THREAT TARGETS	Score	Data Type	Refs

Record the water body type and flow for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a score of 0 at the bottom of this page.

Fishery Name Crosby Water Body Creek Flow 27 cfs

Species_____ Production_____ lbs/yr
Species_____ Production_____ lbs/yr

Fishery Name_____ Water Body_____ Flow_____ cfs

Species_____ Production_____ lbs/yr
Species_____ Production_____ lbs/yr

Fishery Name_____ Water Body_____ Flow_____ cfs

Species_____ Production_____ lbs/yr
Species_____ Production_____ lbs/yr

FOOD CHAIN INDIVIDUAL

7. ACTUAL CONTAMINATION FISHERIES:

If analytical evidence indicates that a fishery has been exposed to a hazardous substance with a bioaccumulation factor greater than or equal to 500 (SI Table 10), assign a score of 50 if there is a Level I fishery. Assign 45 if there is a Level II fishery, but no Level I fishery.

8. POTENTIAL CONTAMINATION FISHERIES:

If there is a release of a substance with a bioaccumulation factor greater than or equal to 500 to a watershed containing fisheries within the target distance limit, but there are no Level I or Level II fisheries, assign a score of 20.

If there is no observed release to the watershed, assign a value for potential contamination fisheries from the table below using the lowest flow at all fisheries within the target distance limit:

Lowest Flow	FCI Value
<10 cfs	20
10 to 100 cfs	2
>100 cfs, coastal tidal waters, oceans, or Great Lakes	0
3-mile mixing zone in quiet flowing river	10

FCI Value = 2

SUM OF TARGETS T = 2

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT WORKSHEET

When measuring length of wetlands that are located on both sides of a surface water body, sum both frontage lengths. For a sensitive environment that is more than one type, assign a value for each type.

ENVIRONMENTAL THREAT TARGETS	Score	Data Type	Refs

Record the water body type and flow for each surface water sensitive environment within the target distance (see SI Table 12). If there is no sensitive environment within the target distance limit, assign a score of 0 at the bottom of the page.

Environment Name	Water Body Type	Flow
		cfs
		cfs
		cfs
		cfs
		cfs

9. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: If sampling data or direct observation indicate any sensitive environment has been exposed to a hazardous substance from the site, record this information on SI Table 11, and assign a factor value for the environment (SI Tables 13 and 14).

Environment Name	Environment Type and Value (SI Tables 13 & 14)	Multiplier (10 for Level I, 1 for Level II)	Product
		x =	
		x =	
		x =	
		x =	
		Sum =	0

10. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS:

Flow	Dilution Weight (SI Table 12)		Environment Type and Value (SI Tables 13 & 14)	Pot. Cont.	Product
cfs		x	x	0.1 =	
cfs		x	x	0.1 =	
cfs		x	x	0.1 =	
cfs		x	x	0.1 =	
cfs		x	x	0.1 =	
				Sum =	0

T = 0

SI TABLE 12 (HRS Table 4-13):
SURFACE WATER DILUTION WEIGHTS

Type of Surface Water Body		Assigned Dilution Weight
Descriptor	**Flow Characteristics**	
Minimal stream	< 10 cfs	1
Small to moderate stream	10 to 100 cfs	0.1
Moderate to large stream	> 100 to 1,000 cfs	0.01
Large stream to river	> 1,000 to 10,000 cfs	0.001
Large river	> 10,000 to 100,000 cfs	0.0001
Very large river	> 100,000 cfs	0.00001
Cpastal tidal waters	Flow not applicable; depth not applicable	~~0.001~~ 0.0001
Shallow ocean zone or Great Lake	Flow not applicable; depth less than 20 feet	~~0.001~~ 0.0001
Moderate depth ocean zone or Great Lake	Flow not applicable; depth 20 to 200 feet	~~0.0001~~ 0.00001
Deep ocean zone or Great Lake	Flow not applicable; depth greater than 200 feet	0.000005
3-mile mixing zone in quiet flowing river	10 cfs or greater	0.5

SI TABLE 13 (HRS TABLE 4-23): SURFACE WATER AND AIR SENSITIVE ENVIRONMENTS VALUES

SENSITIVE ENVIRONMENT	*ASSIGNED VALUE*
Critical habitat for Federal designated endangered or threatened species Marine Sanctuary National Park Designated Federal Wilderness Area Ecologically important areas identified under the Coastal Zone Wilderness Act Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes) National Monument (air pathway only) National Seashore Recreation Area National Lakeshore Recreation Area	100
Habitat known to be used by Federal designated or proposed endangered or threatened species National Preserve National or State Wildlife Refuge Unit of Coastal Barrier Resources System Coastal Barrier (undeveloped) Federal land designated for the protection of natural ecosystems Administratively Proposed Federal Wilderness Area Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary Migratory pathways and feeding areas critical for the maintenance of anadromous fish species within river reaches or areas in lakes or coastal tidal waters in which the fish spend extended periods of time Terrestrial areas utilized by large or dense aggregations of vertebrate animals (semi-aquatic foragers) for breeding National river reach designated as recreational	75
Habitat known to be used by State designated endangered or threatened species Habitat known to be used by a species under review as to its Federal endangered or threatened status Coastal Barrier (partially developed) Federally designated Scenic or Wild River	50
State land designated for wildlife or game management State designated Scenic or Wild River State designated Natural Area Particular areas, relatively small in size, important to maintenance of unique biotic communities	25
State designated areas for the protection of maintenance of aquatic life under the Clean Water Act	5
Wetlands — See SI Table 14 (Surface Water Pathway) or SI Table 23 (Air Pathway)	

SI TABLE 14 (HRS TABLE 4-24): SURFACE WATER WETLANDS FRONTAGE VALUES

Total Length of Wetlands	Assigned Value
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	Score
14. If an Actual Contamination Target (drinking water, human food chain, or environmental threat) exists for the watershed, assign the calculated hazardous waste quantity score, or a score of 100, whichever is greater.	
15. Assign the highest value from SI Table 7 (observed release) or SI Table 3 (no observed release) for the hazardous substance waste characterization factors below. Multiply each by the surface water hazardous waste quantity score and determine the waste characteristics score for each threat.	

	Substance Value		HWQ		Product	WC Score (from Table) (Maximum of 100)
Drinking Water Threat Toxicity/Persistence	100	x	10	=	1,000	6
Food Chain Threat Toxicity/Persistence Bioaccumulation	50	x	10	=	500	3
Environmental Threat Ecotoxicity/Persistence/ Ecobioaccumulation	5,000	x	10	=	50,000	10

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 to <1E + 09	100
1E + 09 to <1E + 10	180
1E + 10 to <1E + 11	320
1E + 11 to <1E + 12	560
1E + 12 or greater	1000

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score	Targets (T) Score	Pathway Waste Characteristics (WC) Score (determined above)	Threat Score $\frac{LR \times T \times WC}{82,500}$
Drinking Water	550	5	6	(maximum of 100) 0.2
Human Food Chain	550	2	3	(maximum of 100) .1
Environmental	550	0	10	(maximum of 60) 0

SURFACE WATER PATHWAY SCORE (Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

(maximum of 100) .24

SOIL EXPOSURE PATHWAY

If there is no observed contamination (e.g., ground water plume with no known surface source), do not evaluate the soil exposure pathway. Discuss evidence for no soil exposure pathway.

Soil Exposure Resident Population Targets Summary

For each property (duplicate page 35 as necessary):

If there is an area of observed contamination on the property and within 200 feet of a residence, school, or day care center, enter on Table 15 each hazardous substance by sample ID. Record the detected concentration. Obtain cancer risk, and reference dose concentrations from SCDM. Sum the cancer risk and reference dose percentages for the substances listed. If cancer risk or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate the residents and students as Level I. If both percentages are less than 100% or all are N/A, evaluate the targets as Level II.

SI TABLE 15: SOIL EXPOSURE RESIDENT POPULATION TARGETS

Residence ID: ____________________ Level I ______ Level II ______ Population ____________________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: ____________________ Level I ______ Level II ______ Population ____________________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

Residence ID: ____________________ Level I ______ Level II ______ Population ____________________

Sample ID	Hazardous Substance	Conc. (mg/kg)	Cancer Risk Concentration	% of Cancer Risk Conc.	RfD	% of RfD	Toxicity Value	References
			Highest Percent		Sum of Percents		Sum of Percents	

SOIL EXPOSURE PATHWAY WORKSHEET
RESIDENT POPULATION THREAT

LIKELIHOOD OF EXPOSURE	Score	Data Type	Refs
1. OBSERVED CONTAMINATION: If evidence indicates presence of observed contamination (depth of 2 feet or less), assign a score of 550; otherwise, assign a 0. Note that a likelihood of exposure score of 0 results in a soil exposure pathway score of 0.			
LE =	550		

TARGETS

2. RESIDENT POPULATION: Determine the number of people living or attending school or day care on a property with an area of observed contamination and whose residence, school, or day care center, respectively, is on or within 200 feet of the area of observed contamination. Level I: _____ people x 10 = _____ Level II: _____ people x 1 = _____ Sum =	0		
3. RESIDENT INDIVIDUAL: Assign a score of 50 if any Level I resident population exists. Assign a score of 45 if there are Level II targets but no Level I targets. If no resident population exists (*i.e.*, no Level I or Level II targets), assign 0 (HRS Section 5.1.3).	0		
4. WORKERS: Assign a score from the table below for the total number of workers at the site and nearby facilities with areas of observed contamination associated with the site.	0		
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value for each terrestrial sensitive environment (SI Table 16) in an area of observed contamination.	0		
6. RESOURCES: Assign a score of 5 if any one or more of the following resources is present on an area of observed contamination at the site; assign 0 if none applies. • Commercial agriculture • Commercial silviculture • Commercial livestock production or commercial livestock grazing	0		
Total of Targets T=	0		

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial Sensitive Environment Type	Value

Sum = 0

SI TABLE 16 (HRS TABLE 5-5): SOIL EXPOSURE PATHWAY TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

TERRESTRIAL SENSITIVE ENVIRONMENT	*ASSIGNED VALUE*
Terrestrial critical habitat for Federal designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federal designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federal designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

SOIL EXPOSURE PATHWAY WORKSHEET
NEARBY POPULATION THREAT

LIKELIHOOD OF EXPOSURE	Score	Data Type	Ref.
7. Attractiveness/Accessibility (from SI Table 17 or HRS Table 5-6) Value 25 Area of Contamination (from SI Table 18 or HRS Table 5-7) Value 20 Likelihood of Exposure (from SI Table 19 or HRS Table 5-8)			
note: if there is no area of observed contamination, LE = 0. LE =	5		

TARGETS	Score	Data Type	Ref.
8. Assign a score of 0 if Level I or Level II resident individual has been evaluated or if no individuals live within 1/4 mile travel distance of an area of observed contamination. Assign a score of 1 if nearby population is within 1/4 mile travel distance and no Level I or Level II resident population has been evaluated.	1		
9. Determine the population within 1 mile travel distance that is not exposed to a hazardous substance from the site (*i.e.*, properties that are not determined to be Level I or Level II); record the population for each distance category in SI Table 20 (HRS Table 5-10). Sum the population values and multiply by 0.1.	0.13		
T =	1.18		

SI TABLE 17 (HRS TABLE 5-6): ATTRACTIVENESS/ACCESSIBILITY VALUES

Area of Observed Contamination	Assigned Value
Designated recreational area	100
Regularly used for public recreation (for example, vacant lots in urban area)	75
Accessible and unique recreational area (for example, vacant lots in urban area)	75
Moderately accessible (may have some access improvements–for example, gravel road) with some public recreation use	50
Slightly accessible (for example, extremely rural area with no road improvement) with some public recreation use	25
Accessible with no public recreation use	10
Surrounded by maintained fence or combination of maintained fence and natural barriers	5
Physically inaccessible to public, with no evidence of public recreation use	0

SI TABLE 18 (HRS TABLE 5-7): AREA OF CONTAMINATION FACTOR VALUES

Total area of the areas of observed contamination (square feet)	Assigned Value
≤ to 5,000	5
> 5,000 to 125,000	20
> 125,000 to 250,000	40
> 250,000 to 375,000	60
> 375,000 to 500,000	80
> 500,000	100

1.03 acre
size = 44866 ft^2

SI TABLE 19 (HRS TABLE 5-8): NEARBY POPULATION LIKELIHOOD OF EXPOSURE FACTOR VALUES

AREA OF CONTAMINATION FACTOR VALUE	ATTRACTIVENESS/ACCESSIBILITY FACTOR VALUE						
	100	75	50	25	10	5	0
100	500	500	375	250	125	50	0
80	500	375	250	125	50	25	0
60	375	250	125	50	25	5	0
40	250	125	50	25	5	5	0
20	125	50	25	5	5	5	0
5	50	25	5	5	5	5	0

SI TABLE 20 (HRS TABLE 5-10): DISTANCE-WEIGHTED POPULATION VALUES FOR NEARBY POPULATION THREAT

Travel Distance Category (miles)	Pop.	Number of people within the travel distance category												Pop. Value
		0	1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,001	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	
Greater than 0 to $\frac{1}{4}$	5	0	0.1	0.4	1.0	4	13	41	130	408	1,303	4,081	13,034	0.1
Greater than $\frac{1}{4}$ to $\frac{1}{2}$	39	0	0.05	0.2	0.7	2	7	20	65	204	652	2,041	6,517	.7
Greater than $\frac{1}{2}$ to 1	126	0	0.02	0.1	0.3	1	3	10	33	102	326	1,020	3,258	1

Reference(s) _____ Sum = 1.8

SOIL EXPOSURE PATHWAY WORKSHEET (concluded)

WASTE CHARACTERISTICS

10.	Assign the hazardous waste quantity score calculated for soil exposure HRS Section 5.1.2.2 and HRS Table 5-2.	1
11.	Assign the highest toxicity value from SI Table 16, 3 or 4 for the soil exposure pathway	10
12.	Multiply the toxicity and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:	WC = 6

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

RESIDENT POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 1;
Targets = Sum of Questions 2, 3, 4, 5, 6)

$$\frac{LE \times T \times WC}{82{,}500}$$

0

NEARBY POPULATION THREAT SCORE:

(Likelihood of Exposure, Question 7;
Targets = Sum of Questions 8, 9)

$$\frac{LE \times T \times WC}{82{,}500}$$

0

SOIL EXPOSURE PATHWAY SCORE:
Resident Population Threat + Nearby Population Threat ÷ 82,500

0 (Maximum of 100)

AIR PATHWAY

Air Pathway Observed Substances Summary Table

On SI Table 21, list the hazardous substances detected in air samples of a release from the site. Include only those substances with concentrations significantly greater than background levels. Obtain benchmark, cancer risk, and reference dose concentrations from SCDM. For NAAQS/NESHAPS benchmarks, determine the highest percentage of benchmark obtained for any substance. For cancer risk and reference dose, sum the percentages for the substances listed. If benchmark, cancer risk, or reference dose concentrations are not available for a particular substance, enter N/A for the percentage. If the highest benchmark percentage or the percentage sum calculated for cancer risk or reference dose equals or exceeds 100%, evaluate targets in the distance category from which the sample was taken and any closer distance categories as Level I. If the percentages are less than 100% or all are N/A, evaluate targets in that distance category and any closer distance categories that are not Level I as Level II.

SI TABLE 21: AIR PATHWAY OBSERVED RELEASE SUBSTANCES

Sample ID: _____ Level I _____ Level II _____ Distance from Sources (mi) ____ References_____

Hazardous Substance	Conc. (µg/m^3)	Gaseous Particulate	Benchmark Conc. (NAAQS or NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
	Highest Toxicity/ Mobility		Highest Percent		Sum of Percents		Sum of Percents	

Sample ID: _____ Level I _____ Level II _____ Distance from Sources (mi) ____ References_____

Hazardous Substance	Conc. (µg/m^3)	Toxicity/ Mobility	Benchmark Conc. (NAAQS or NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
	Highest Toxicity/ Mobility		Highest Percent		Sum of Percents		Sum of Percents	

Sample ID: _____ Level I _____ Level II _____ Distance from Sources (mi) ____ References_____

Hazardous Substance	Conc. (µg/m^3)	Toxicity/ Mobility	Benchmark Conc. (NAAQS or NESHAPS)	% of Benchmark	Cancer Risk Conc.	% of Cancer Risk Conc.	RfD	% of RfD
	Highest Toxicity/ Mobility		Highest Percent		Sum of Percents		Sum of Percents	

AIR PATHWAY WORKSHEET

LIKELIHOOD OF RELEASE	Score	Data Type	Refs
1. OBSERVED RELEASE: If sampling data or direct observation support a release to air, assign a score of 550. Record observed release substances on SI Table 21.			
2. POTENTIAL TO RELEASE: If sampling data do not support a release to air, assign a score of 500. Optionally, evaluate air migration gaseous and particulate potential to release (HRS Section 6.1.2).			
	LR = 500		

TARGETS			
3. ACTUAL CONTAMINATION POPULATION: Determine the number of people within the target distance limit subject to exposure from a release of a hazardous substance to the air. a) Level I: _____ people x 10 = _____ b) Level II: _____ people x 1 = _____ **Total =**	0		
4. POTENTIAL TARGET POPULATION: Determine the number of people within the target distance limit not subject to exposure from a release of a hazardous substance to the air, and assign the total population score from SI Table 22. Sum the values and multiply the sum by 0.1.	1.17		
5. NEAREST INDIVIDUAL: Assign a score of 50 if there are any Level I targets. Assign a score of 45 if there are Level II targets but no Level I targets. If no Actual Contamination Population exists, assign the Nearest Individual score from SI Table 22.	20		
6. ACTUAL CONTAMINATION SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (SI Table 13) and wetland acreage values (SI Table 23) for environments subject to exposure from the release of a hazardous substance to the air.	0		
7. POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS: Use SI Table 24 to evaluate sensitive environments not subject to exposure from a release.	0		
8. RESOURCES: Assign a score of 5 if one or more air resources apply within 1/2 mile of a source; assign a 0 if none applies. • Commercial agriculture • Commercial silviculture • Major or designated recreation area	0		
	T = 21.17		

Sensitive Environment Type	*Value*
Wetland Acreage	*Value*

SI TABLE 22 (From HRS TABLE 6-17): VALUES FOR POTENTIAL CONTAMINATION AIR TARGET POPULATIONS

Distance from Site	Pop.	Nearest Individual (choose highest)	Number of People within the Distance Category												Pop. Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,000 to 3,000,000	
On a source	0	20	4	17	53	164	522	1,633	5,214	16,325	52,137	163,246	521,360	1,632,455	
0 to $\frac{1}{4}$ mile	5	*	(1)	4	13	41	131	408	1,304	4,081	13,034	40,812	130,340	408,114	1
$>\frac{1}{4}$ to $\frac{1}{2}$ mile	39	2	0.2	0.9	(3)	9	28	88	282	882	2,815	8,815	28,153	88,153	
$>\frac{1}{2}$ to 1 mile	126	1	0.06	0.3	0.9	(3)	8	26	83	261	834	2,612	8,342	26,119	3
> 1 to 2 miles	364	0	0.02	0.09	0.3	0.8	(3)	8	27	83	266	833	2,659	8,326	3
> 2 to 3 miles	849	0	0.009	0.04	0.1	0.4	(1)	4	12	38	120	375	1,199	3,755	1
>3 to 4 miles	864	0	0.005	0.02	0.07	0.2	(0.7)	2	7	28	73	229	730	2,285	0.7
	Nearest Individual =	20												Sum =	11.7

References _____

* Score = 20 if the Nearest Individual is within $\frac{1}{8}$ mile of a source; score = 7 if the Nearest Individual is between $\frac{1}{8}$ and $\frac{1}{4}$ mile of a source.

SI TABLE 23 (HRS TABLE 6-18): AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
< 1 acre	0
1 to 50 acres	25
> 50 to 100 acres	75
> 100 to 150 acres	125
> 150 to 200 acres	175
> 200 to 300 acres	250
> 300 to 400 acres	350
> 400 to 500 acres	450
> 500 acres	500

SI TABLE 24: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY POTENTIAL CONTAMINATION SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from SI Tables 13 and 20) 23	Product
On a Source	0.10	x	
		x	
0 to 1/4 mile	0.025	x	
		x	
		x	
1/4 to 1/2 mile	0.0054	x	
		x	
		x	
1/2 to 1 mile	0.0016	x	
		x	
		x	
1 to 2 miles	0.0005	x	
		x	
		x	
2 to 3 miles	0.00023	x	
		x	
		x	
3 to 4 miles	0.00014	x	
		x	
		x	
> 4 miles	0	x	

Total Environments Score =

WASTE CHARACTERISTICS

9. If any Actual Contamination Targets exist for the air pathway, assign the calculated hazardous waste quantity score or a score of 100, whichever is greater; if there are no Actual Contamination Targets for the air pathway, assign the calculated HWQ score for sources available to air migration. All sources must meet the minimum size requirement of 0.5 (HRS 6.1.2.1.2)	10
10. Assign the highest air toxicity/mobility value from SI Table 21.	0.008
11. Multiply the air pathway toxicity/mobility and hazardous waste quantity scores. Assign the Waste Characteristics score from the table below:	WC = 1

Product	WC Score
0	0
>0 to <10	1
10 to <100	2
100 to <1,000	3
1,000 to < 10,000	6
10,000 to <1E + 05	10
1E + 05 to <1E + 06	18
1E + 06 to <1E + 07	32
1E + 07 to <1E + 08	56
1E + 08 or greater	100

AIR PATHWAY SCORE:

$$\frac{LR-500}{LE \times T \times WC} \quad \frac{2.17}{82,500} \quad -1$$

0.13 (maximum of 100)

SITE SCORE CALCULATION	S	S^2
GROUND WATER PATHWAY SCORE (S_{GW})	[illegible]	[illegible]
SURFACE WATER PATHWAY SCORE (S_{SW})	0.27	[illegible]
SOIL EXPOSURE (S_S)	0	0
AIR PATHWAY SCORE (S_A)	0.13	0.0169
SITE SCORE $\sqrt{\frac{S_{GW}^2+S_{SW}^2+S_S^2+S_A^2}{4}}$ =		1.09

COMMENTS

Reference 1

Potential Hazardous Waste Site

PRELIMINARY ASSESSMENT

ACTIVATED METALS

TND 003381308

COSBY, COCKE COUNTY, TENNESSEE

PLEMINARY ASSESSMENT

ACTIVATED METALS

TND 003381308

I. HISTORY OF SITE

The Activated Metals site located 1¼ miles north of Cosby, Cocke County, Tennessee was used to dispose of wastes generated at the Activated Metals Plant located in the Sevierville Industrial Park, Sevierville, Tennessee. The land that the waste was disposed on is owned by:

The Estate of A. J. King Jr.

P. O. Box 32

Sevierville, Tennessee 37862

Activated Metals is a manufacturer of hydrogenation catalysts, sponge nickel catalysts and nickel shalts. The waste of concern was generated by the periodic cleaning of sodium aluminate crystalization tanks. The waste was composed of varing amounts of spent nickel catalyst, sodium aluminate, sodium hydroxide and aluminum hydroxide.

II. NATURE OF HAZARDOUS MATERIALS

The sodium hydroxide and aluminum hydroxide are of a low hazard status based upon their high Ph. The nickel sponge waste has a very high hazard due to the metal nickel which has a high toxicity and persistance level.

III. DESCRIPTION OF HAZARDOUS CONDITIONS, INCIDENTS AND PERMIT VIOLATIONS

The care taken and the conditions under which the waste was disposed are unknown. If improper disposal practices were used, then there exists the potential for contaminate migration by both surface and groundwater routes. There are no other identified incidents of permit violations.

IV. ROUTES OF CONTAMINATION

If the waste was improperly disposed there exists the potential for contaminaiton by both run-off and infiltration migration from the site.

V. POSSIBLE AFFECTED POPULATIONS AND RESOURCES

Possible surface and groundwater contamination by migration of the wastes. Utilities water for domestic use is supplied to the area but it is highly possible that there are unknown hold-outs that through choice are still using groundwater for domestic use. The population of Cocke County in 1980 was 28792 people.

VI. RECOMMENDATIONS AND JUSTIFICATIONS

There is no evidence that past waste handling at this site is affecting the population or environment. However, due to the limited sources of information available, the complete history of waste handling practice is incomplete. For this reason a site inspection with a low priority is recommended for this site.

VIII. REFERENCE TO SUPPORTING DATA SOURCES

1. Geologic Map of Tennessee, East Sheet, William D. Hardeman, 1966.

2. Hartford, Tennessee - North Carolina 7½ Minute Quadrangle Topographic Map (1940 (Photo Revised 1968)).

3. Tennessee 1980 Census of Population, U. S. Department of Commerce, Bureau of The Census.

4. Site Report by Pam Pulliam, TDH&E, DSWM, dated 11/23/83.

5. Direcotry of Tennessee manufacturers, 1986.

CR/lag SF #3

OVERSIZED

DOCUMENT

Reference 3

Activated Metals

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 003381308

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Activated Metals	Off of Highway 32

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Cosby	TN	37722	Cocke	29	1

09 COORDINATES LATITUDE	LONGITUDE
32° 50' 03".	83° 14' 37".

10 DIRECTIONS TO SITE (Starting from nearest public road)

West off of I-40 at Foothills Parkway. Go Foothill Parkway west to Highway 32. Go north on Highway 32. Go 1¼ miles north of Cosby, Tennessee. The site is adjacent to Cosby Creek.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Estate of A.J. King Jr.	P.O. Box 32

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Sevierville	TN	37862	(615) 453-7177

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
Same As Owner	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 2/13/80 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)	03 YEARS OF OPERATION		
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN	1965 (BEGINNING YEAR)	1979 (ENDING YEAR)	☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Waste accumulated from cleaning sodium aluminate crystalization tanks.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Corrosive wastes and spent nickel catalyst.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspection time available basis) ☐ D. NONE (No further action needed; complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Neil Brank	Activated Metals	(615) 453-7177 (615) 984-0704

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Charles R. Rush	TDH&E	Superfund	(615) 741-6287	8 29 86 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	0 003381308

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A SOLID
- [ ] B POWDER, FINES
- [X] C SLUDGE
- [ ] D OTHER (Specify)
- [ ] E SLURRY
- [ ] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS: unknown
CUBIC YARDS:
NO OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A TOXIC
- [ ] B CORROSIVE
- [ ] C RADIOACTIVE
- [ ] D PERSISTENT
- [ ] E SOLUBLE
- [ ] F INFECTIOUS
- [ ] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	72,800	kg/yr	aluminate sludge
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	4,000	pounds	nickel catalyst

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SLU	Sodium Aluminate	1302427	landfill/unknown	unknown	
SLU	Sodium Hydroxide	1310732	landfill/unknown	unknown	
SLU	Aluminum Hydroxide	21645512	landfill/unknown	unknown	
MES	Nickel Catalyst	999	landfill/unknown	unknown	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

See References

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 003381308

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1182 — 04 NARRATIVE DESCRIPTION

The site lies in a folded and fractured geological area and if any contaminates are present, then there exists the potential for ground water contamination via vertical migration.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1187 — 04 NARRATIVE DESCRIPTION

The site lies adjacent to Cosby Creek and if any contaminates exist, then there is a possibility for contamination by surface runoff such as rain water.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: 1.03 (Acres) — 04 NARRATIVE DESCRIPTION

The condition of the waste site is unknown, but if the waste migrates, there is a potential for soil contamination.

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 003381308

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 1182

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

See References

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

REGION: IV | SITE NUMBER (To be assigned by HQ):

Reference 4

S: Complete Sections I and III through XV of this form as completely as possible. Then use the informa- a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log II appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Pro- ing System, Hazardous Waste Enforcement Task Force (EN-335), 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET (or other identifier)		
Activated Metals & Chemicals			
C. CITY	**D. STATE**	**E. ZIP CODE**	**F. COUNTY NAME**
Sieverville	Tenn		

G. SITE OPERATOR INFORMATION

1. NAME			2. TELEPHONE NUMBER
Mr. Oscar Dunn			
3. STREET	**4. CITY**	**5. STATE**	**6. ZIP CODE**
	Sieverville	Tenn.	

H. REALTY OWNER INFORMATION (if different from operator of site)

1. NAME		2. TELEPHONE NUMBER	
3. CITY		**4. STATE**	**5. ZIP CODE**

I. SITE DESCRIPTION
on a ridgetop, about 1/2 mi from Little Pigeon River.

J. TYPE OF OWNERSHIP
☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.)	B. APPARENT SERIOUSNESS OF PROBLEM
8/20/79	☐ 1. HIGH ☐ 2. MEDIUM ☒ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Ron W. Joyner	881-3016	2/13/80

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME	2. TITLE	
John Dickinson	Chief, Hazardous Materials Sections	
3. ORGANIZATION		**4. TELEPHONE NO. (area code & no.)**
U.S. EPA		881-3016

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Bobby Morrison	Tennessee Solid Waste Manag	
Robin Morning	Tennessee Solid Waste Manag	

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Mr. Andrew King	Co-Owner Act. Metals	

Continued From Front

III. INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
Ad. metals & Chemicals			spent Nickel Catalyst

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED
Mr. Oscar Dunn			same as above

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

G. DATE OF INSPECTION (mo., day, & yr.)	H. TIME OF INSPECTION	I. ACCESS GAINED BY: (credentials must be shown in all cases)
3/23/79		☒ 1. PERMISSION ☐ 2. WARRANT

J. WEATHER (describe)
unKnown

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER			
b. SURFACE WATER			
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL			
h. VEGETATION			
i. OTHER (specify)			

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS

Continue On Page 3

Continued From Page 2

IV. SAMPLING INFORMATION (continued)

C. PHOTOS

1. TYPE OF PHOTOS
☐ a. GROUND ☐ b. AERIAL

2. PHOTOS IN CUSTODY OF:

D. SITE MAPPED?
☐ YES. SPECIFY LOCATION OF MAPS

E. COORDINATES
1. LATITUDE (deg.-min.-sec.)

2. LONGITUDE (deg.-min.-sec.)

V. SITE INFORMATION

A. SITE STATUS
☐ 1. ACTIVE (Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if infrequently.)
☒ 2. INACTIVE (Those sites which no longer receive wastes.)
☐ 3. OTHER (specify): _____ (Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)

B. IS GENERATOR ON SITE?
☒ 1. NO ☐ 2. YES (specify generator's four-digit SIC Code): _____

C. AREA OF SITE (~~In acres~~)
150' x 300'

D. ARE THERE BUILDINGS ON THE SITE?
☒ 1. NO ☐ 2. YES (specify):

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity(ies) and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	X	1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER (specify):		6. OTHER (specify):		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER (specify):
					9. OTHER (specify):		

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

☐ 1. STORAGE ☐ 2. INCINERATION ☒ 3. LANDFILL ☐ 4. SURFACE IMPOUNDMENT ☐ 5. DEEP WELL
☐ 6. CHEM/BIO/PHYS TREATMENT ☐ 7. LANDFARM ☐ 8. OPEN DUMP ☐ 9. TRANSPORTER ☐ 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE
☐ 1. LIQUID ☒ 2. SOLID ☐ 3. SLUDGE ☐ 4. GAS

B. WASTE CHARACTERISTICS
☐ 1. CORROSIVE ☐ 2. IGNITABLE ☐ 3. RADIOACTIVE ☐ 4. HIGHLY VOLATILE
☒ 5. TOXIC ☐ 6. REACTIVE ☐ 7. INERT ☐ 8. FLAMMABLE
☐ 9. OTHER (specify):

C. WASTE CATEGORIES
1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Continue On Reverse

Continued From Front

VII. WASTE RELATED INFORMATION (continued)

2. Estimate the amount (specify unit of measure) of waste by category, mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT 6000	AMOUNT 6000 lbs	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE lbs	UNIT OF MEASURE
X (1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER (specify)	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER (specify)	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
(5) OTHER (specify)			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER (specify)
			(6) CYANIDE	(6) OTHER (specify): Nickel Catalyst	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER (specify)		

D. LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (place in descending order of hazard)

1. SUBSTANCE	2. FORM (mark 'X') a. SOLID	b. LIQ.	c. VAPOR	3. TOXICITY (mark 'X') a. HIGH	b. MED.	c. LOW	d. NONE	4. CAS NUMBER	5. AMOUNT	6. UNIT
Nickel Catalyst	X				X					

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

☐ A. HUMAN HEALTH HAZARDS

Continue On Page 5

VIII. HAZARD DESCRIPTION *(continued)*

☐ B. NON-WORKER INJURY/EXPOSURE

☐ C. WORKER INJURY/EXPOSURE

☐ D. CONTAMINATION OF WATER SUPPLY

☐ E. CONTAMINATION OF FOOD CHAIN

☒ F. CONTAMINATION OF GROUND WATER

potential hazard

☒ G. CONTAMINATION OF SURFACE WATER

potential hazard

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')

I. RECEIVING WATER

1. NAME

☐ 2. SEWERS ☐ 3. STREAMS/RIVERS

☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

6. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☒ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

'X'	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	'X'	C. OTHER (specify below)
	1. SAND				
	2. CLAY				
	3. GRAVEL				

XIII. SOIL PERMEABILITY

☒ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

I. SLOPE

1. ESTIMATE % OF SLOPE | 2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.

J. OTHER GEOLOGICAL DATA

Continued From Front

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X')		
					1. YES	2. NO	3. UNKNOWN
NONE							

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☑ YES (summarize in this space)

State required material to be removed from site no later than April 6, 1979.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposition (Section II) information on the first page of this form.

Reference 5

CERTIFIED MAIL #533520
RETURN RECEIPT REQUESTED

Rita file
old site

April 2, 1979

Mr. Andrew James King III
Activated Metals and Chemicals Company
P.O. Box 32
Sevierville, Tennessee 37862

Dear Mr. King:

This letter will confirm the events that occurred and the agreement reached during my visit to your office with Robin Manning and Sidney Ledbetter, Division of Solid Waste Management; Hurdle Harris, Sevier County Health Department; and John Dickinson, Environmental Protection Agency, on March 30, 1979.

We had received a complaint that Oscar Dunn had been employed by your company to dispose of several barrels of chemical waste from your plant on an unapproved site owned by Mr. Dunn. You admitted that one of your employees, without your knowledge, had authorized Mr. Dunn to dispose of between 4,000 to 6,000 pounds of spent nickel catalyst. You stated the material contained approximately 95% diatomaceous earth and 5% or less nickel.

We next visited your number one plant and were shown a sample of the material. We then went to the Dunn property where the material had been buried. While none of the waste was left exposed, it appeared that the trench where it had been buried was approximately 30 feet wide by 100 feet long. Since everything had been covered the depth could not be estimated.

We next returned to your office and again discussed the events leading up to the disposal and the proposed remedy with you and also this time with your brother, Daniel R. King. The agreement we reached was as follows:

1. You and your brother agreed to have Mr. Dunn bring his equipment back to the site and excavate all the waste plus any contaminated soil and return it to the number one plant.

2. This excavation is to be done in the presence of and under the supervision of Robin Manning of the Division of Solid Waste Management.

3. A composite sample of the material will be collected by Manning and analyzed by a privately operated, state certified laboratory at your expense.

1817

4. Immediately upon excavation of the material it is to be transported in sealed bed trucks to the number one plant where it is to be stored in the depressed loading ramp. This ramp is to have any drain sealed to prevent any material entering the drain. Once the material is in place it is to be covered with a plastic cover to prevent its getting wet.

5. If the sample analyses indicate the material is suitable, Manning will give you a letter authorizing its disposal in the Gatlinburg Sanitary Landfill if they will accept it.

6. If the material is not suitable for disposal in the Gatlinburg landfill or if they refuse to accept it, you may repackage it in new lever-lock drums and continue to store it, or you may utilize one of the chemical landfills recommended to you by John Dickinson.

7. All the material is to be excavated and returned to the number one plant by April 6, 1979, at the latest, unless severe rainy weather prevents work.

We would urge you to let us work with you in the future to determine proper disposal sites for any waste you wish to dispose of so that there will be no future incidents of this nature.

We appreciate your cooperation and concern in the correction of this incident. If we can be of assistance in the future, please feel free to contact this office or our Knoxville or Johnson City Office.

Sincerely,

Bobby W. Morrison
Division of Solid Waste Management

BWM/ah 9/57 9/58

cc: Sevier County Health Department
East Tennessee Regional Health Office
Robin Manning
Larry Watson
D. Larry Gilliam
John Dickinson
The Honorable Charles Edwards

Reference 6

May 18, 1979

4AH-RM

Mrs. Margaret W. Crane
Seymour, Tennessee 37865

Dear Mrs. Crane:

In response to your letter of May 3, 1979 we offer the following answers to your questions:

1. How much waste was dumped and when?

   Attached is a copy of the memo I prepared after visiting the site. It answers your question fully.

2. How much waste was removed and how many cartons were broken.

   According to Robin Manning of Tennessee Solid Waste, Knoxville Office, all the waste was removed from the pit. He personally supervised the clean-up operation. He said that as best he could determine, there are no other pits on the site. I do not know how many cartons were broken but since the waste was removed, I do not see why it matters.

3. How hazardous is the waste?

   Tennessee Solid Waste approved the waste to go to Gatlinburg landfill. Mr. Manning said the analysis of the waste showed very low Nickel content so the waste was not hazardous in their judgment.

If you have further questions about the clean-up you may wish to contact Mr. Manning directly at 615-546-9221 in Knoxville.

Sincerely yours,

John E. Dickinson, Jr.
Hazardous Waste Coordinator

Enclosure

cc: Tom Tiesler, TN SW
    Robin Manning, Regional Engineer

4AH-RMJDICKINSON:dm:X3016:5/18/79
File:

Reference 7

R C R I S Data System

County Name	Facility Name	Facility Id
CLAIBORNE	TENNESSEE ASPHALT COMPANY	TND982158602
CLAY	HEVI-DUTY ELECTRIC	TND987774718
COCKE	ARAPAHOE CHEM INC ROCK HILL LABS	TND000646661
COCKE	ARAPAHOE CHEMICALS INC	TND066712308
COCKE	BENNINGTON PINE FURNITURE CO.	TND074908005
COCKE	BROCKWELL JIMMY C TRUCK LEASING	TND000822262
COCKE	DETROIT GASKET & MFG CO#	TND005381421
COCKE	EASTERN PLATING INC	TND980837892
COCKE	FALCON PRODUCTS INC.	TND982078867
COCKE	FLURA CORPORATION	TND987766276
COCKE	GLI INC.	TND987767787
COCKE	GREAT LAKES CHEMICAL CORP	TND980840524
COCKE	GULTON ELECTRO-VOICE INC	TND003388733
COCKE	HEYWOOD-WAKEFIELD CO	TND003382330
COCKE	NORFOLK SOUTHERN RAILWAY COMPANY	TND987783347
COCKE	PARKS DRY CLEANERS	TND053983763
COCKE	QUAKER OATS STOKELY VAN CAMP	TND003384757
COCKE	SOUTHERN RR CITICO SHOP	TND081200743

{F1 = Help} { <- -> = Scroll} {ESC = Exit} {F10 = Search} V2.1

R C R I S Data System

County Name	Facility Name	Facility Id
CLAIBORNE	TENNESSEE ASPHALT COMPANY	TND982158602
CLAY	HEVI-DUTY ELECTRIC	TND987774718
COCKE	ARAPAHOE CHEM INC ROCK HILL LABS	TND000646661
COCKE	ARAPAHOE CHEMICALS INC	TND066712308
COCKE	BENNINGTON PINE FURNITURE CO.	TND074908005
COCKE	BROCKWELL JIMMY C TRUCK LEASING	TND000822262
COCKE	DETROIT GASKET & MFG CO#	TND005381421
COCKE	EASTERN PLATING INC	TND980837892
COCKE	FALCON PRODUCTS INC.	TND982078867
COCKE	FLURA CORPORATION	TND987766276
COCKE	GLI INC.	TND987767787
COCKE	GREAT LAKES CHEMICAL CORP	TND980840524
COCKE	GULTON ELECTRO-VOICE INC	TND003388733
COCKE	HEYWOOD-WAKEFIELD CO	TND003382330
COCKE	NORFOLK SOUTHERN RAILWAY COMPANY	TND987783347
COCKE	PARKS DRY CLEANERS	TND053983763
COCKE	QUAKER OATS STOKELY VAN CAMP	TND003384757
COCKE	SOUTHERN RR CITICO SHOP	TND081200743

{F1 = Help} { <- -> = Scroll} {ESC = Exit} {F10 = Search} V2.1

R C R I S Data System

County Name	Facility Name	Facility Id
HENDERSON	ODLE CHEVROLET OLDS INC	TND034726067
HENDERSON	OUTBOARD MARINE CORPORATION	TND980845838

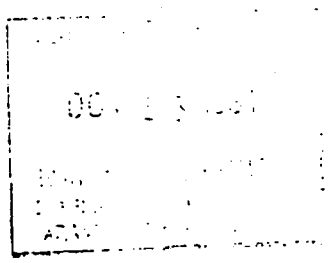
Reference 8

1990 CPH-1-44

1990 Census of Population and Housing

Summary Population and Housing Characteristics

Tennessee



Issued August 1991

U.S. Department of Commerce
Robert A. Mosbacher, Secretary
Rockwell A. Schnabel, Deputy Secretary

Economics and Statistics Administration
Michael R. Darby, Under Secretary
for Economic Affairs and Administrator

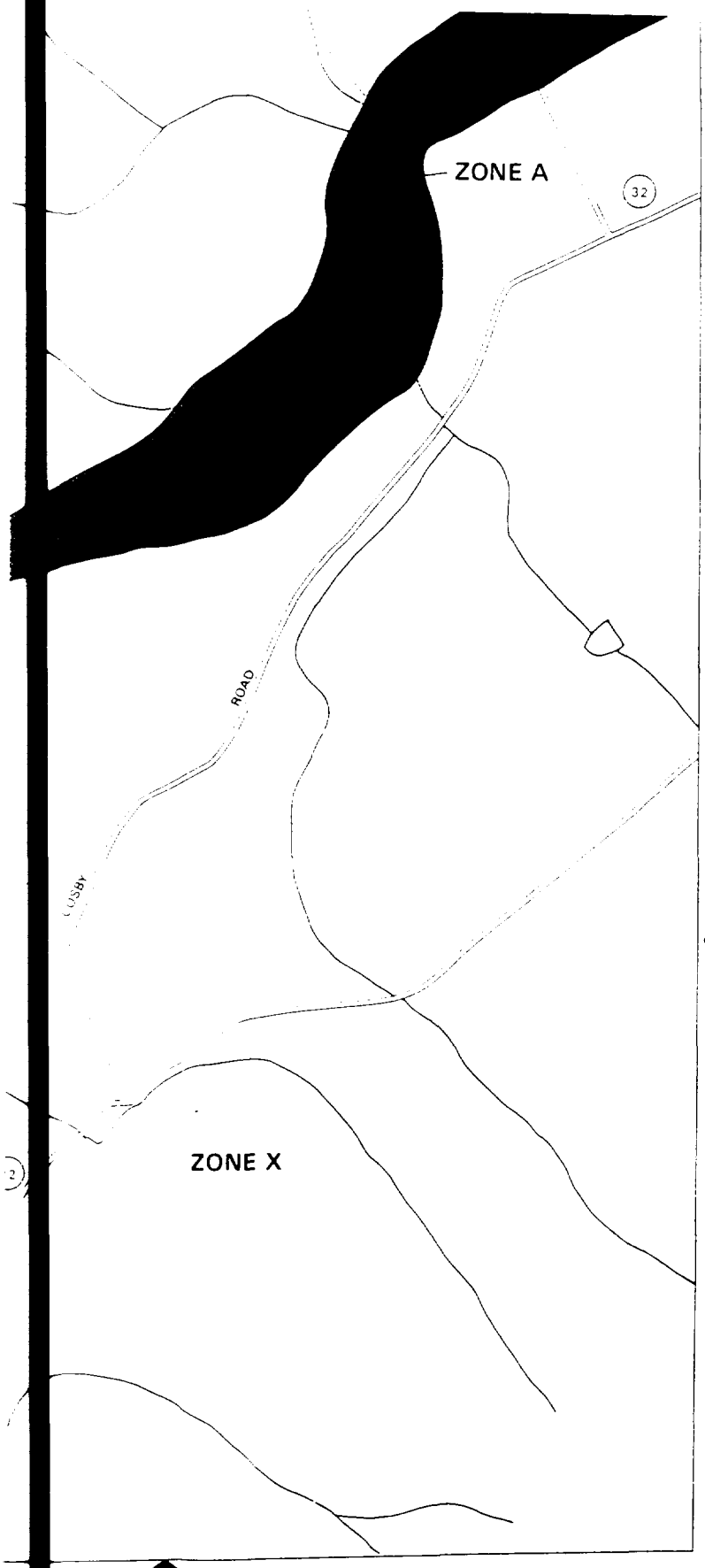
BUREAU OF THE CENSUS
Barbara Everitt Bryant, Director

Table 6. **Household, Family, and Group Quarters Characteristics: 1990**

For definitions of terms and meanings of symbols see text]

State County Place and [In Selected States] County Subdivision	Persons in households	All households	Family households			Nonfamily households				Persons per—		Persons in group quarters		
			Total	Married-couple family	Female householder, no husband present	Total	Householder living alone			Household	Family	Total	Institutionalized persons	Other persons in group quarters
							Total	65 years and over						
								Total	Female					
The State	4 748 056	1 853 725	1 348 019	1 059 569	232 699	505 706	442 129	178 077	143 105	2.56	3.05	129 129	65 389	63 740
COUNTY														
Anderson County	67 595	27 384	19 846	16 181	2 958	7 538	6 911	3 117	2 547	2 47	2.96	655	578	77
Bedford County	30 031	11 608	8 768	7 087	1 289	2 840	2 536	1 290	1 017	2 59	3 01	380	343	37
Benton County	14 255	5 784	4 333	3 732	465	1 451	1 349	751	603	2 46	2 90	269	228	41
Bledsoe County	8 608	3 261	2 522	2 104	300	739	670	320	240	2 64	3 06	1 061	1 051	10
Blount County	84 463	33 624	25 344	21 284	3 237	8 280	7 400	3 267	2 661	2 51	2 94	1 506	1 044	462
Bradley County	72 043	27 604	21 157	17 518	2 841	6 447	5 714	2 277	1 826	2 61	3 02	1 669	539	1 130
Campbell County	34 783	13 150	10 158	8 036	1 702	2 992	2 789	1 496	1 192	2 65	3 07	296	285	11
Cannon County	10 356	3 980	3 035	2 574	351	945	872	470	375	2 60	3 03	111	111	-
Carroll County	26 860	10 727	8 013	6 612	1 092	2 714	2 531	1 435	1 148	2 50	2 95	654	388	266
Carter County	50 225	20 189	14 979	12 283	2 114	5 210	4 779	2 314	1 839	2 49	2 94	1 280	749	531
Cheatham County	26 840	9 515	7 748	6 679	776	1 767	1 524	587	436	2 82	3 15	300	180	120
Chester County	11 791	4 558	3 505	2 933	446	1 053	963	514	422	2 59	3 01	1 028	187	841
Claiborne County	25 533	9 629	7 579	6 266	1 007	2 050	1 910	935	772	2 65	3 05	604	210	394
Clay County	7 158	2 855	2 144	1 748	301	711	649	318	214	2 51	2 93	80	71	9
Cocke County	28 840	11 191	8 483	6 551	1 500	2 708	2 470	1 138	882	2 58	3 00	301	270	31
Coffee County	39 855	15 500	11 727	9 693	1 556	3 773	3 431	1 588	1 264	2 57	3 01	484	452	32
Crockett County	13 103	5 183	3 856	3 141	567	1 327	1 257	766	623	2 53	3 00	275	275	-
Cumberland County	34 207	13 426	10 451	8 842	1 265	2 975	2 688	1 299	1 026	2 55	2 92	529	529	-
Davidson County	489 689	207 530	131 395	95 592	29 555	76 135	62 830	18 268	14 969	2 36	2 97	21 095	10 317	10 778
Decatur County	10 320	4 216	3 109	2 603	391	1 107	1 032	607	461	2 45	2 91	142	142	-
DeKalb County	14 237	5 696	4 316	3 574	584	1 380	1 293	692	563	2 50	2 93	123	106	17
Dickson County	34 532	13 019	10 099	8 188	1 510	2 920	2 648	1 285	1 007	2 65	3 06	529	389	140
Dyer County	34 343	13 617	9 923	7 869	1 643	3 694	3 360	1 773	1 435	2 52	3 01	511	474	37
Fayette County	25 110	8 453	6 717	5 038	1 334	1 736	1 576	765	556	2 97	3 40	449	436	13
Fentress County	14 559	5 511	4 258	3 415	665	1 253	1 165	585	439	2 64	3 07	110	110	-
Franklin County	33 429	12 660	9 883	8 412	1 135	2 777	2 530	1 312	1 061	2 64	3 04	1 296	314	982
Gibson County	45 568	18 361	13 472	10 708	2 248	4 889	4 573	2 560	2 114	2 48	2 96	747	644	103
Giles County	25 336	9 832	7 454	6 038	1 116	2 378	2 218	1 166	891	2 58	3 02	405	205	200
Grainger County	16 912	6 394	5 076	4 281	591	1 318	1 217	590	459	2 64	3 02	183	146	37
Greene County	54 175	21 482	16 280	13 290	2 295	5 202	4 747	2 120	1 687	2 52	2 94	1 678	727	951
Grundy County	13 157	4 784	3 743	3 048	534	1 041	976	522	412	2 75	3 18	205	193	12
Hamblen County	49 750	19 429	14 795	11 895	2 314	4 634	4 138	1 629	1 313	2 56	2 97	730	525	205
Hamilton County	279 044	111 799	78 964	60 790	15 042	32 835	29 025	11 581	9 488	2 50	3 02	6 492	3 622	2 870
Hancock County	6 571	2 484	1 924	1 505	321	560	532	269	212	2 65	3 07	168	168	-
Hardeman County	22 589	8 276	6 190	4 534	1 356	2 086	1 887	968	751	2 73	3 22	788	770	18
Hardin County	22 350	8 726	6 633	5 490	882	2 093	1 940	978	764	2 56	3 00	283	263	20
Hawkins County	44 232	17 167	13 223	11 100	1 624	3 944	3 639	1 671	1 334	2 58	2 99	333	299	34
Haywood County	19 240	7 014	5 150	3 566	1 320	1 864	1 708	905	703	2 74	3 29	197	59	138
Henderson County	21 630	8 527	6 466	5 392	320	2 061	1 922	975	765	2 54	2 97	214	212	2
Henry County	27 456	11 362	8 216	6 723	1 126	3 146	2 902	1 619	1 282	2 42	2 89	432	388	44
Hickman County	15 715	5 976	4 608	3 882	526	1 368	1 229	619	505	2 63	3 04	1 039	1 039	-
Houston County	6 842	2 683	2 039	1 705	261	644	604	335	248	2 55	2 98	176	163	13
Humphreys County	15 551	6 063	4 593	3 844	561	1 470	1 373	665	514	2 56	3 01	244	110	134
Jackson County	9 176	3 642	2 782	2 303	334	860	806	475	358	2 52	2 94	121	119	2
Jefferson County	31 415	12 329	9 510	8 018	1 144	2 819	2 530	1 192	940	2 55	2 94	1 601	445	1 156
Johnson County	13 609	5 406	4 081	3 260	599	1 325	1 230	618	464	2 52	2 95	157	145	12
Knox County	323 400	133 639	90 561	71 679	15 478	43 078	36 661	12 962	10 642	2 42	2 97	12 349	3 288	9 061
Lake County	6 057	2 418	1 735	1 328	323	683	625	343	262	2 50	3 00	1 072	1 051	21
Lauderdale County	22 598	8 423	6 351	4 846	1 259	2 072	1 898	1 059	842	2 68	3 15	893	884	9
Lawrence County	34 992	13 338	10 765	8 665	1 291	3 073	2 884	1 596	1 317	2 62	3 06	311	302	9
Lewis County	9 098	3 533	2 606	2 179	328	927	859	451	353	2 58	3 06	149	136	13
Lincoln County	27 910	10 881	8 230	6 812	1 097	2 651	2 455	1 376	1 090	2 57	3 01	247	239	8
Loudon County	30 926	12 155	9 289	7 687	1 301	2 866	2 635	1 237	1 005	2 54	2 96	329	329	-
McMinn County	41 710	16 351	12 458	10 275	1 751	3 893	3 600	1 755	1 425	2 55	2 98	673	446	227
McNairy County	22 180	8 834	6 678	5 592	824	2 156	2 014	1 073	863	2 51	2 95	242	242	-
Macon County	15 817	6 159	4 711	4 027	522	1 448	1 356	707	577	2 57	3 00	89	56	33
Madison County	75 515	29 609	21 301	15 950	4 504	8 308	7 397	3 206	2 554	2 55	3 06	2 467	841	1 626
Marion County	24 645	9 215	7 171	5 838	1 032	2 044	1 873	963	761	2 67	3 08	215	205	10
Marshall County	21 248	8 268	6 120	4 950	881	2 148	1 954	989	779	2 57	3 04	291	229	62
Maury County	54 073	20 608	15 552	12 280	2 622	5 056	4 554	2 052	1 680	2 62	3 07	739	688	51
Meigs County	7 921	2 996	2 333	1 958	261	663	592	255	194	2 64	3 03	112	112	-
Monroe County	29 940	11 363	8 781	7 231	1 163	2 582	2 385	1 167	917	2 63	3 06	601	317	284
Montgomery County	93 516	34 345	26 914	22 284	3 712	7 431	6 208	2 071	1 628	2 72	3 09	6 982	472	6 510
Moore County	4 714	1 734	1 391	1 222	112	343	327	169	136	2 72	3 11	7	7	-
Morgan County	16 011	5 841	4 621	3 745	680	1 220	1 119	558	432	2 74	3 13	1 289	1 289	-
Obion County	31 399	12 412	9 219	7 624	1 279	3 193	2 950	1 598	1 290	2 53	3 00	318	298	20
Overton County	17 425	6 734	5 266	4 404	645	1 468	1 368	745	581	2 59	2 99	201	192	9
Perry County	6 460	2 512	1 905	1 650	186	607	568	300	232	2 57	3 02	152	152	-
Pickett County	4 494	1 786	1 330	1 105	169	456	430	239	184	2 52	2 98	54	49	5
Polk County	13 538	5 092	4 010	3 373	455	1 082	990	519	418	2 66	3 05	105	105	-
Putnam County	48 419	19 753	13 994	11 578	1 913	5 759	4 757	1 945	1 593	2 45	2 93	2 954	534	2 420
Rhea County	23 638	9 185	6 985	5 606	1 088	2 200	2 022	984	779	2 57	3 00	706	410	296
Roane County	46 747	18 453	13 967	11 612	1 831	4 486	4 126	1 970	1 592	2 53	2 96	480	434	46
Robertson County	41 045	14 801	11 886	9 903	1 537	2 915	2 623	1 283	990	2 77	3 14	449	449	-
Rutherford County	113 372	42 118	31 225	25 678	4 272	10 893	8 545	2 671	2 136	2 69	3 14	5 198	1 455	3 743
Scott County	18 189	6 534	5 128	4 150	765	1 406	1 311	684	553	2 78	3 21	169	169	-
Sequatchie County	8 778	3 287	2 555	2 087	353	732	656	322	252	2 67	3 06	85	85	-
Sevier County	50 394	19 520	15 091	12 706	1 853	4 429	3 858	1 561	1 239	2 58	2 96	649	582	67
Shelby County	803 085	303 571	212 076	144 773	56 404	91 495	77 999	25 382	20 245	2 65	3 22	23 245	12 180	11 065
Smith County	13 998	5 358	4 151	3 579	447	1 207	1 127	643	512	2 61	3 03	145	134	11
Stewart County	9 295	3 678	2 812	2 452	251	866	793	444	344	2 53	2 93	184	95	89
Sullivan County	141 449	56 729	42 516	35 372	5 632	14 213	13 048	5 674	4 669	2 49	2 93	2 147	1 351	796
Sumner County	102 065	36 850	29 511	24 907	3 545	7 339	6 384	2 579	2 093	2 77	3 13	1 216	637	579
Tipton County	37 301	13 033	10 345	8 119	1 780	2 688	2 410	1 198	924	2 86	3 27	267	267	-
Trousdale County	5 795	2 261	1 715	1 402	241	546	512	265	207	2 56	3 01	125	100	25
Unicoi County	16 318	6 621	4 938	4 074	653	1 683	1 565	868	703	2 46	2 91	231	220	11
Union County	13 573	4 932	3 992	3 325	508	940	841	385	300	2 75	3 10	121	90	31
Van Buren County	4 841	1 799	1 451	1 199	190	348	322	149	105	2 69	3 05	5	5	-
Warren County	32 597	12 681	9 601	7 861	1 365	3 080	2 834	1 404	1 152	2 57	3 01	395	381	14
Washington County	87 891	35 823	25 375	20 537	3 798	10 448	9 004	3 632	2 945	2 45	2 95	4 424	2 017	2 407
Wayne County	13 709	5 174	4 079	3 448	482	1 095	1 011	551	448	2 65	3 03	226	204	22
Weakley County	29 569	11 992	8 589	7 194	1 076	3 403	2 928	1 475	1 203	2 47	2 95	2 403	479	1 924
White County	19 880	7 722	5 986	4 989	765	1 736	1 622	915	725	2 57	2 98	210	192	18
Williamson County	80 308	27 928	23 096	20 255	2 228	4 832	4 146	1 389	1 117	2 88	3 20	713	699	14
Wilson County	67 110	24 070	19 610	16 710	2 249	4 460	3 910	1 688	1 335	2 79	3 13	565	271	294

Reference 9



To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

F/2

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

COCKE COUNTY, TENNESSEE AND INCORPORATED AREAS

PANEL 90 OF 175

CONTAINS:

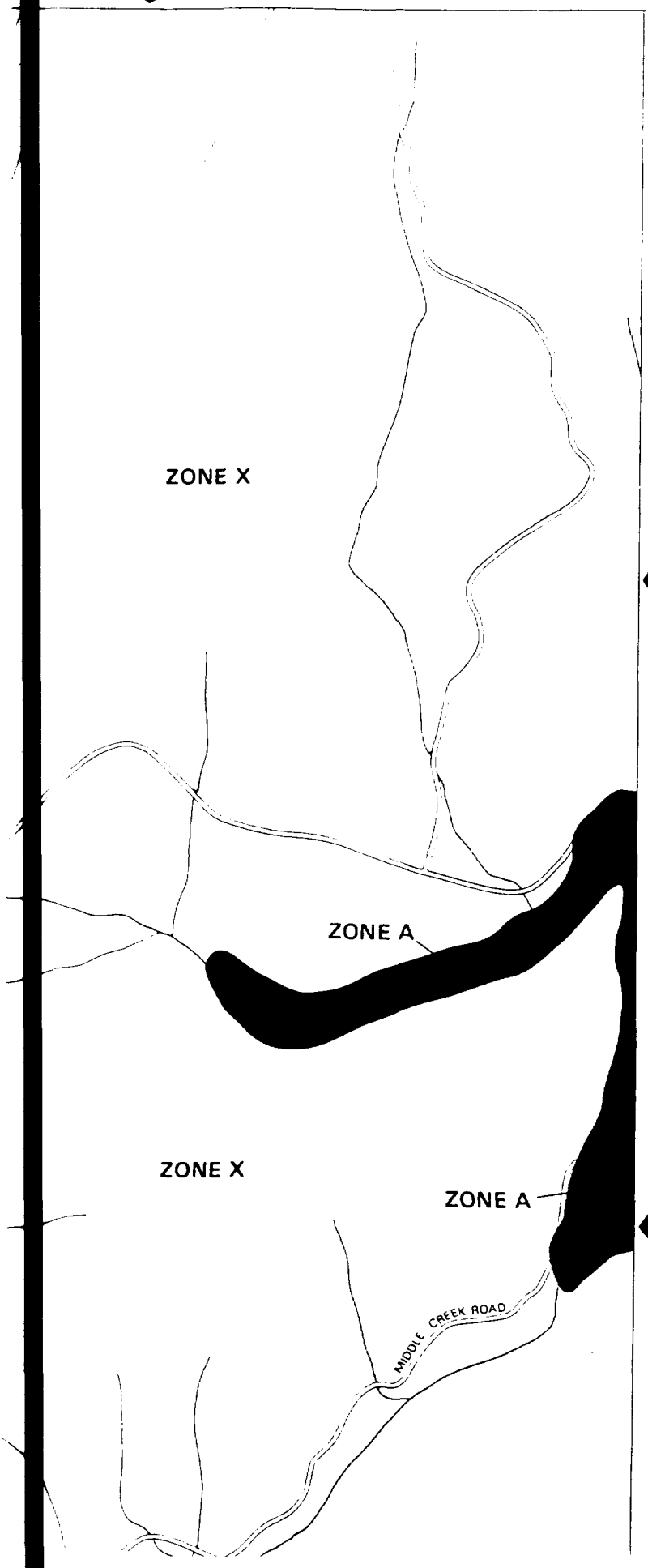
COMMUNITY	NUMBER	PANEL	SUFFIX
UNINCORPORATED AREAS	470033	0090	C

PANEL LOCATION

MAP NUMBER:
47029C0090 C

EFFECTIVE DATE:
JANUARY 6, 1988

Federal Emergency Management Agency



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A	No base flood elevations determined.
ZONE AE	Base flood elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE A99	To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
ZONE V	Coastal flood with velocity hazard (wave action); no base flood elevations determined.
ZONE VE	Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X	Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X	Areas determined to be outside 500-year flood plain.
ZONE D	Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

$RM7_X$ — Elevation Reference Mark

•MI.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

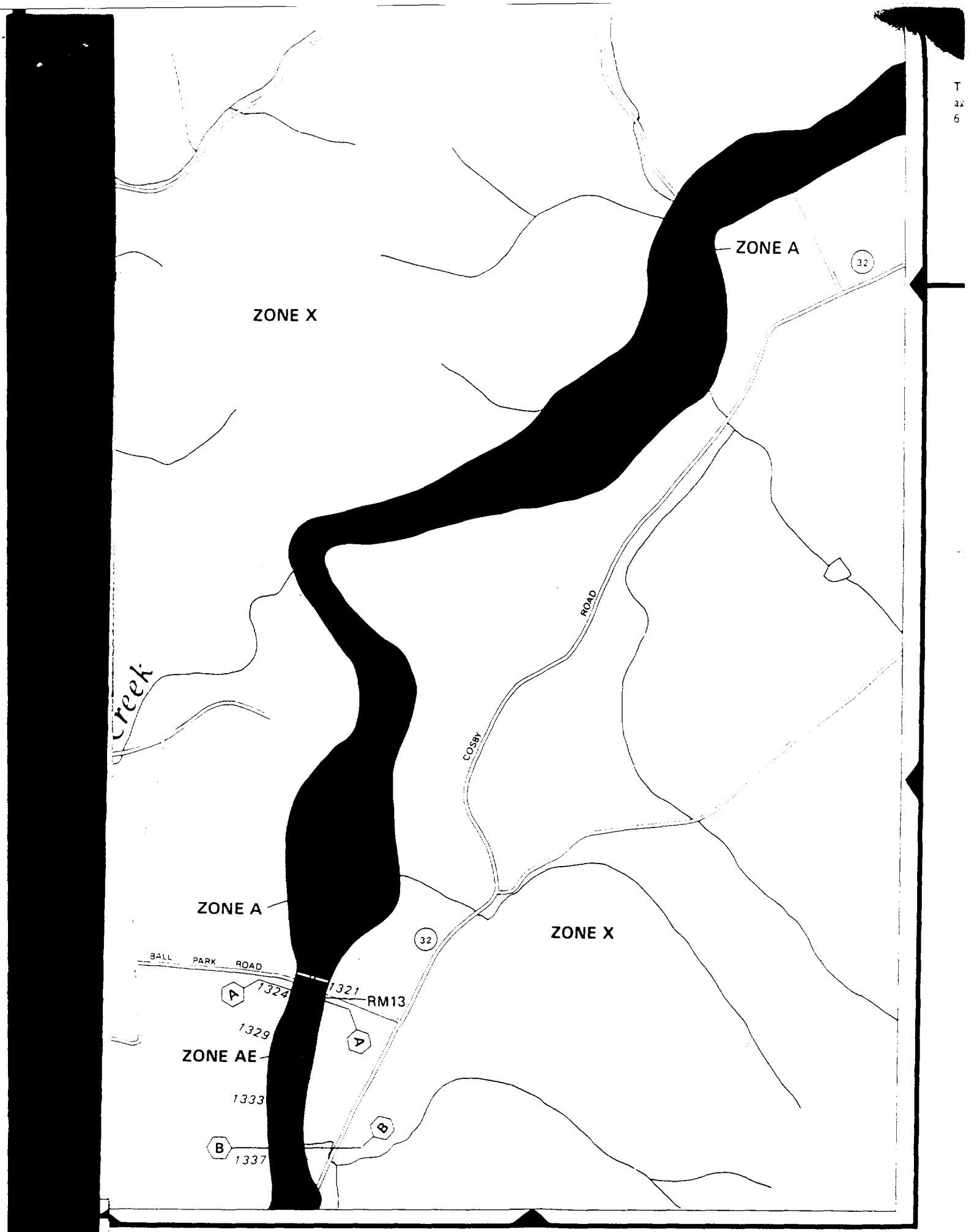
Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of the shoreline.

Elevation reference marks are described in the Flood Insurance Study Report.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine


ZONE A
ZONE X
32
ROAD
COSBY
Creek
ZONE A
ZONE X
32
BALL PARK ROAD
A
1324
1321
RM13
1329
A
ZONE AE
1333
B
B
1337

Reference 10

TENNESSEE'S WATER QUALITY CRITERIA
AND STREAM USE CLASSIFICATIONS
FOR INTERSTATE AND INTRASTATE STREAMS

FEBRUARY 1987

Tennessee Water Quality Control Board
Department of Health and Environment
150 - 9th Avenue, North
Nashville, Tennessee 37203

(10) French Broad River Basin

STREAM	DESCRIPTION	DOM	IND	FISH	REC	IRR	LW&W	NAV
French Broad River	Mile 0.0 to 102.2 (N. Carolina-Tenn Line)	X	X	X	X	X	X	
Hines Creek	Mile 0.0 to Origin		X	X	X	X	X	
Unnamed Tributary	At Hines Creek (Mile 1.7)			X			X	
Unnamed Tributary	At Hines Creek (Mile 3.7)			X			X	
Cement Mill Creek	Mile 0.0 to Origin		X	X	X	X	X	
Boyds Creek	Mile 0.0 to Origin		X	X	X	X	X	
Unnamed Tributary	At Boyds Creek (Mile 9.7)			X			X	
Unnamed Tributary	At Boyds Creek (Mile 11.5)			X			X	
Little Pigeon River	Mile 0.0 to 2.9	X	X	X	X	X	X	
Gist (Guess) Creek	Mile 0.0 to Origin			X	X	X	X	
Little Pigeon River	Mile 2.9 to 4.8		X	X	X	X	X	
W.F. Little Pigeon R.	Mile 0.0 to 7.9	X	X	X	X	X	X	
W.F. Little Pigeon R.	Mile 7.9 to 8.8		X	X	X	X	X	
W.F. Little Pigeon R.	Mile 8.8 to 13.0	X	X	X	X	X	X	
W.F. Little Pigeon R.	Mile 13.0 to 19.0		X	X	X	X	X	
W.F. Little Pigeon R.	Mile 19.0 to Origin	X	X	X	X	X	X	
Little Pigeon River	Mile 4.8 to Origin	X	X	X	X	X	X	
E.F. Little Pigeon R.	Mile 0.0 to Origin	X	X	X	X	X	X	
Dunn Creek	Mile 0.0 to Origin	X	X	X	X	X	X	
Ogle Springs Branch	Mile 0.0 to Origin			X	X	X	X	
Bird Creek	Mile 0.0 to Origin			X	X	X	X	
Muddy Creek	Mile 0.0 to Origin			X	X	X	X	
Clear Creek	Mile 0.0 to Origin			X	X	X	X	
City Spring Tributary	Mile 0.0 to 1.0			X	X	X	X	
City Spring Tributary	Mile 1.0 to 1.4			X		X	X	
Indian Creek	Mile 0.0 to Origin			X	X	X	X	
Ball Creek	Mile 0.0 to Origin			X	X	X	X	
Unnamed Tributary	At Ball Creek (Mile 2.9); Mile 0.0 to Origin			X			X	
Leadvale Creek	Mile 0.0 to 1.0			X		X	X	
Leadvale Creek	Mile 1.0 to Origin			X	X	X	X	

(10) French Broad River Basin

STREAM	DESCRIPTION	DOM	IND	FISH	REC	IRR	LW&W	NAV
Clear Creek	Mile 0.0 to 6.7			X	X	X	X	
Clear Creek	Mile 6.7 to 6.9			X		X	X	
Clear Creek	Mile 6.9 to Origin			X	X	X	X	
Nolichucky River	Mile 0.0 to 5.3	X	X	X	X	X	X	
Long Creek	Mile 0.0 to Origin			X	X	X	X	
Sinking Creek	Mile 0.0 to Origin			X	X	X	X	
Nolichucky River	Mile 5.3 to 7.7		X	X		X	X	
Nolichucky River	Mile 7.7 to 100.8 (N. Carolina-Tenn Line)	X	X	X	X	X	X	
Slate Creek	Mile 0.0 to 3.3			X	X	X	X	
Slate Creek	Mile 3.3 to 3.5			X		X	X	
Slate Creek	Mile 3.5 to Origin			X	X	X	X	
Bent Creek	Mile 0.0 to Origin			X	X	X	X	
Mud Creek	Mile 0.0 to Origin			X	X	X	X	
Williams Branch	Mile 0.0 to 0.3			X	X	X	X	
Williams Branch	Mile 0.3 to Origin			X		X	X	
Lick Creek	Mile 0.0 to 49.0			X	X	X	X	
Lick Creek	Mile 49.0 to Origin		X	X	X	X	X	
Black Creek	Mile 0.0 to Origin	X	X	X	X	X	X	
War Branch	Mile 0.0 to 0.5			X	X	X	X	
Unnamed Tributary	At Lick Creek (Mile 36.1); Mile 0.0 to Origin			X		X	X	
Little Chucky Creek	Mile 0.0 to Origin			X			X	
Mosheim Branch	Mile 0.0 to Origin			X	X	X	X	
Unnamed Trib.	At Mosheim Branch (Mile 2.0); Mile 0.0 to Origin			X	X	X	X	
Unnamed Tributary	At Little Chucky Creek (Mile 17.2); Mile 0.0 to Origin			X	X		X	
Gap Creek	Mile 0.0 to Origin			X	X	X	X	

(10) French Broad River Basin

STREAM	DESCRIPTION	DOM	IND	FISH	REC	IRR	LW&W	NAV
Furness Branch	Mile 0.0 to 4.4			X	X	X	X	
Furness Branch	Mile 4.4 to 4.6			X		X	X	
Furness Branch	Mile 4.6 to Origin			X	X	X	X	
Cove Creek	Mile 0.0 to Origin			X	X	X	X	
Flag Branch	Mile 0.0 to 1.0			X	X	X	X	
Flag Branch	Mile 1.0 to 1.2			X		X	X	
Flag Branch	Mile 1.2 to Origin			X	X	X	X	
Richland Creek	Mile 0.0 to Origin		X	X	X	X	X	
Crazy Creek	Sinkhole to Origin			X	X	X	X	
Unnamed Tributary	At Crazy Creek (Mile 1.3); Mile 0.0 to 0.5			X	X	X	X	
Unnamed Tributary	Mile 0.5 to Origin			X			X	
Camp Creek	Mile 0.0 to Origin		X	X	X	X	X	
Dry Creek	Mile 0.0 to Origin			X	X	X	X	
College Creek	Mile 0.0 to 2.6			X	X	X	X	
College Creek	Mile 2.6 to 2.8			X		X	X	
College Creek	Mile 2.8 to Origin			X	X	X	X	
Moon Creek	Mile 0.0 to 2.6			X	X	X	X	
Moon Creek	Mile 2.6 to 2.8			X		X	X	
Moon Creek	Mile 2.8 to Origin			X	X	X	X	
Sinking Creek	Mile 0.0 to 1.0			X	X	X	X	
Sinking Creek	Mile 1.0 to 1.3			X		X	X	
Sinking Creek	Mile 1.3 to 2.4			X	X	X	X	
Sinking Creek	Mile 2.4 to 2.6			X	X	X	X	
Sinking Creek	Mile 2.6 to Origin		X	X	X	X	X	
Little Limestone Creek	Mile 0.0 to 12.0			X	X	X	X	
Little Limestone Creek	Mile 12.0 to 12.5			X		X	X	
Little Limestone Creek	Mile 12.5 to Origin			X	X	X	X	

(10) French Broad River Basin

STREAM	DESCRIPTION	DOM	IND	FISH	REC	IRR	LW&W	NAV
North Indian Creek	Mile 0.0 to Origin	X	X	X	X	X	X	
Pigeon River	Mile 0.0 to 25.9 (Tenn-N. Car. Line)		X	X	X	X	X	
Sinking Creek	Mile 0.0 to 5.2		X	X		X	X	
Sinking Creek	Mile 5.2 to Origin			X	X	X	X	
Cosby Creek	Mile 0.0 to 4.0			X	X	X	X	
Cosby Creek	Mile 4.0 to 4.3			X		X	X	
Cosby Creek	Mile 4.3 to Origin			X	X	X	X	

All tributaries in the French Broad River Basin, Named and Unnamed, which have not been specifically noted shall be classified

				X	X	X	X	

(Trout Streams)

Little Pigeon River	From Confluence of Middle Prong Porters Creek to 5 Miles Below Smokey Mountains National Park Line
Webb Creek	Entire Length
Soak Ash Creek	Entire Length
Timothy Creek	Entire Length
Redwine Creek	Entire Length
Noisy Creek	Entire Length
Texas Creek	Entire Length
Copeland Creek	Entire Length
Injun Creek	Entire Length
Rhoddendron Creek	Entire Length
Porters Creek	Entire Length
False Gap Prong	Entire Length
Kalanu Prong	Entire Length
Long Branch	Entire Length
Cannon Creek	Entire Length
Lowes Creek	Entire Length
Boulevard Prong	Entire Length
Middle Prong	Entire Length

(10) French Broad River Basin (Trout Streams)

STREAM	DESCRIPTION
Ramsay Prong	Entire Length
Chapman Prong	Entire Length
Lost Prong	Entire Length
Eagle Rocks Branch	Entire Length
Buck Fork	Entire Length
Matthew Creek	Entire Length
West Prong Little Pigeon	From Headwaters to 5 Miles Below Smokey Mountain National Park Line
Dudley Creek	Entire Length
Little Dudley Creek	Entire Length
Roaring Fork Creek	Entire Length
Baskins Creek	Entire Length
Leconte Creek	Entire Length
Fighting Creek	Entire Length
Sugarland Branch	Entire Length
Big Branch	Entire Length
Road Prong	Entire Length
Cole Branch	Entire Length
Alum Cave Creek	Entire Length
Walker Camp Prong	Entire Length
French Broad River	
Big Creek	Entire Length
Tom Creek	Entire Length
Bailey Branch	Entire Length
Dry Fork Creek	Entire Length
Trail Fork Creek	Entire Length
Bear Branch	Entire Length

(10) French Broad River Basin (Trout Streams)

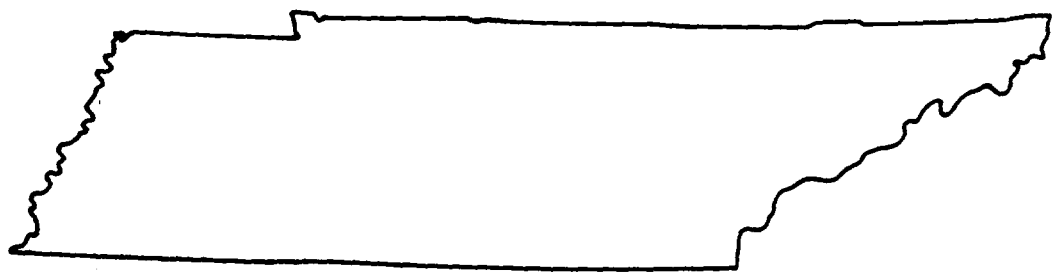
STREAM	DESCRIPTION
Laurel Fork Branch	Entire Length
Deep Gap Creek	Entire Length
Moss Camp Creek	Entire Length
Middle Prong	Entire Length
Gulf Creek	Entire Length
Laurel Creek	Entire Length
Brown Gap Creek	Entire Length
Wolf Creek	Mile 0.0 to 2.0
Brush Creek	Mile 0.0 to 1.0
Nolichuchy River	
Camp Creek	Entire Length
Jennings Creek	Entire Length
Dry Creek	Entire Length
Davis Creek	Entire Length
Horse Creek	Entire Length
Squibb Creek	Entire Length
Cassi Creek, East & West Forks	Entire Length
Clarks Creek	Entire Length
Long Arm Branch	Entire Length
Devil Fork Branch	Entire Length
Chigger Branch	Entire Length
Broad Shoal Creek	Entire Length
California Creek	Entire Length
North Indian Creek	Entire Length
Rock Creek	Entire Length
Duck Creek	Entire Length
Red Fork Creek	Entire Length
Clear Fork Branch	Entire Length

(10) French Broad River Basin (Trout Streams)

STREAM	DESCRIPTION	
South Indian Creek	Entire Length	
Mill Creek	Entire Length	
Granny Lewis Creek	Entire Length	
Big Branch	Entire Length	
Little Higgins Creek	Entire Length	
Birch Field Camp Creek	Entire Length	
Spivey Creek	Entire Length	
Coffee Ridge Creek	Entire Length	
Watts Branch	Entire Length	
Tumbling Creek	Entire Length	
Big Branch	Entire Length	
Rocky Fork Creek	Entire Length	
Flint Creek	Entire Length	
Devil Fork Creek	Entire Length	
Sams Creek	Entire Length	
Big Higgins Creek	Entire Length	
East Fork Higgins Creek	Entire Length	
Rice Creek	Entire Length	
Jones Branch	Entire Length	
Long Branch	Entire Length	
Pigeon River		
Sinking Creek	Mile 0.0 to 5.0	
Cosby Creek	Mile 0.0 to 5.0	
North Fork Bogard Creek	Entire Length	
Indian Camp Creek	Entire Length	
West Prong Little Pigeon River	Sevier Co.	Mile 4.5 to Origin

Reference 11

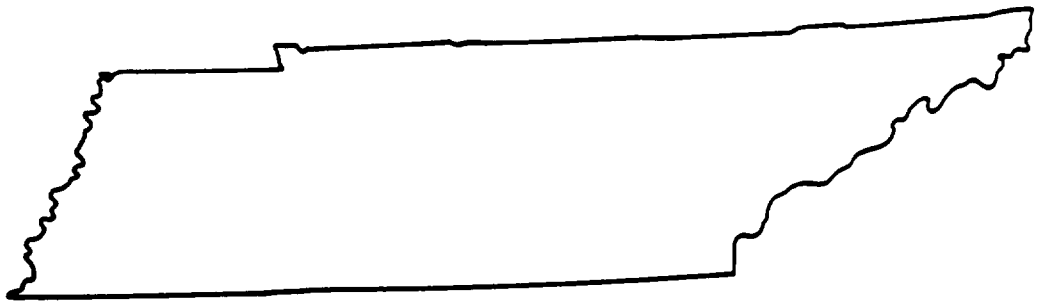
Water Resources Data Tennessee Water Year 1986



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TN-86-1
Prepared in cooperation with the Tennessee Department of Health and Environment, Office of Water Management; the Tennessee Valley Authority; and with other municipal, and Federal agencies

Water Resources Data
Tennessee
Water Year 1986

by J.F. Lowery, P.H. Counts, H.L. Edmiston and F.D. Edwards



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT TN-86-1
Prepared in cooperation with the Tennessee Department of Health and Environment, Office of Water Management; the Tennessee Valley Authority; and with other State, municipal, and Federal agencies.

DEPARTMENT OF THE INTERIOR

DONALD PAUL HODEL, SECRETARY

U.S. GEOLOGICAL SURVEY

Dallas L. Peck, Director

For information on the water program in Tennessee write to
District Chief, Water Resources Division
U.S. Geological Survey
A-413 Federal Building, U.S. Courthouse
Nashville, Tennessee 37203

1987

03461200 COSBY CREEK ABOVE COSBY, TN

LOCATION.--Lat 35°46'58", long 83°13'03", Cocke County, Hydrologic Unit 06010106, in Great Smoky Mountains National Park on left retaining wall of creek, 400 ft downstream from Crying Creek, 600 ft upstream from bridge on State Highway 32, 3,600 ft upstream from Stillhouse Branch, 2.4 mi southeast of Cosby, and at mile 10.7.

DRAINAGE AREA.--10.1 mi².

PERIOD OF RECORD.--Annual maximum, water years 1959-66 (1959-65 published as "near Cosby"); October 1966 to current year.

REVISED RECORD.--WDR TN-82-1: 1977-78(M)(P), 1979, 1980-81(M)(P).

GAGE.--Water-stage recorder and crest stage gage. Datum of gage is 1,644.07 ft above National Geodetic Vertical Datum of 1929. Oct. 15, 1958, to Sept. 30, 1966, crest-stage gage at site 600 ft downstream, at datum 1.08 ft lower (gage heights adjusted to present datum in WSP 2110). Oct. 1, 1966 to June 13, 1977, water-stage recorder at site 600 ft downstream at present datum.

REMARKS.--Estimated daily discharges: Dec. 25-27; Jan. 28, 29. Records good. Periodic observations of water temperature are published in this report as miscellaneous water quality data.

AVERAGE DISCHARGE.--20 years, 27.3 ft³/s, 36.71 in/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,720 ft³/s, Mar. 16, 1973, gage height, 4.11 ft former site; about 17.1 ft present site; minimum, 1.4 ft³/s, Sept. 30, Oct. 1, 2, 1968.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft³/s and maximum (*):

Date	Time	Discharge (ft³/s)	Gage Height (ft)	Date	Time	Discharge (ft³/s)	Gage Height (ft)
Mar. 13	1400	*407	*14.75	No other peak greater than base discharge.			

Minimum discharge, 2.5 ft³/s, Aug. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1985 TO SEPTEMBER 1986
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	4.6	58	14	10	39	14	10	11	5.7	3.5	11
2	5.1	6.8	45	13	12	35	14	9.7	10	19	3.3	28
3	5.1	7.9	34	14	22	32	13	9.3	9.4	25	3.1	95
4	5.0	27	27	13	28	28	13	9.0	8.5	11	2.9	60
5	4.5	27	23	13	33	26	12	8.6	8.0	8.8	2.7	40
6	4.3	31	20	13	31	24	12	8.3	8.2	7.5	3.2	27
7	4.2	40	17	12	28	21	12	8.0	8.3	6.6	4.1	20
8	4.1	34	16	11	23	20	13	8.2	8.4	5.9	4.7	16
9	3.9	24	14	12	20	19	13	7.3	20	5.4	3.3	14
10	4.0	19	14	11	18	29	11	6.9	30	38	3.0	12
11	4.0	18	14	11	18	59	11	6.7	30	37	4.9	11
12	3.8	17	26	11	15	47	11	6.6	19	24	5.7	17
13	3.7	14	23	10	14	142	10	7.5	15	18	3.9	12
14	3.8	13	22	9.8	15	132	9.8	7.3	13	16	6.9	11
15	4.0	11	20	9.6	14	134	9.7	7.1	12	13	4.0	9.6
16	5.7	11	18	9.4	14	82	9.5	6.2	11	11	19	9.9
17	4.7	11	17	9.4	66	60	9.7	8.6	9.6	9.5	54	9.0
18	4.2	10	16	9.4	114	47	9.3	10	8.8	8.5	45	8.2
19	4.0	9.8	15	13	72	44	9.5	8.3	8.2	7.7	27	7.6
20	3.8	9.4	14	12	53	37	9.4	9.4	7.6	6.9	20	7.5
21	5.8	11	14	10	42	33	17	8.2	7.1	6.3	14	16
22	6.6	17	13	11	36	28	20	7.4	6.5	6.8	11	12
23	5.8	18	13	11	31	25	16	17	6.1	6.8	9.5	10
24	5.4	16	13	11	27	23	14	17	5.8	5.6	8.9	9.1
25	5.8	14	12	11	23	21	14	23	5.4	5.8	7.8	8.4
26	5.2	13	12	12	21	20	14	19	5.0	4.9	6.9	7.9
27	4.9	12	11	11	44	19	12	19	4.7	4.6	6.9	7.3
28	4.8	22	11	10	45	18	12	17	5.2	5.5	15	6.5
29	4.6	52	10	10	---	17	12	16	6.4	4.5	15	6.2
30	4.6	57	9.9	10	---	15	11	15	7.2	3.9	11	6.0
31	4.5	---	12	9.7	---	14	---	13	---	3.6	9.8	---
TOTAL	144.5	577.5	583.9	347.3	889	1290	367.9	334.6	315.4	342.8	340.0	515.2
MEAN	4.66	19.2	18.8	11.2	31.8	41.6	12.3	10.8	10.5	11.1	11.0	17.2
MAX	6.6	57	58	14	114	142	20	23	30	38	54	95
MIN	3.7	4.6	9.9	9.4	10	14	9.3	6.2	4.7	3.6	2.7	6.0
CFSM	.46	1.90	1.96	1.11	3.15	4.12	1.22	1.07	1.04	1.10	1.09	1.70
IN.	.53	2.13	2.15	1.28	3.27	4.75	1.36	1.23	1.16	1.26	1.25	1.90

CAL YR 1985	TOTAL	6569.8	MEAN	18.0	MAX	411	MIN	3.4	CFSM	1.78	IN.	24.20
WTR YR 1986	TOTAL	6048.1	MEAN	16.6	MAX	142	MIN	2.7	CFSM	1.64	IN.	22.29

[redacted]

Reference 12

ENDANGERED & THREATENED SPECIES

of the SOUTHEAST UNITED STATES

"The Red Book"

REGION 4

ATLANTA

GEORGIA

[redacted]

ENDANGERED AND THREATENED SPECIES

OF THE

SOUTHEASTERN UNITED STATES

(THE RED BOOK)

Prepared by:

U.S. Fish and Wildlife Service
Southeast Region
Atlanta, Georgia

January 1992

Availability Unlimited
For Sale by Superintendent of Documents
Post Office Box 371954
Pittsburgh, PA 1525O-7954

Stock Order Number: 924-OO3-OOOOO-6

4/22/92

Federally Listed Species by State

TENNESSEE

(E=Endangered; T=Threatened; CH=Critical Habitat determined)

Mammals	General Distribution
Bat, gray (*Myotis grisescens*) - E	Entire State
Bat, Indiana (*Myotis sodalis*) - E, CH	Central, East
Cougar, eastern (*Felis concolor couguar*) - E	North, East
Panther, Florida (*Felis concolor coryi*) - E	Southwest
Squirrel, Carolina northern flying (*Glaucomys sabrinus coloratus*) - E	Eastern mountains (Carter and Sevier Counties)
Birds	
Eagle, bald (*Haliaeetus leucocephalus*) - E	Entire State
Falcon, American peregrine (*Falco peregrinus anatum*) - E	East, Central, Extreme Northwest
Falcon, Arctic peregrine (*Falco peregrinus tundrius*) - T	Entire State (mostly West)
Tern, least (*Sterna antillarum*) interior population - E	Mississippi River
Warbler, Bachman's (*Vermivora bachmanii*) - E	West
Warbler, Kirtland's (*Dendroica kirtlandii*) - E	Extreme Northeast
Woodpecker, ivory-billed (*Campephilus principalis*) - E	Extreme West
Woodpecker, red-cockaded (*Picoides [=Dendrocopos] borealis*) - E	East
Fishes	
Chub, slender (*Hybopsis cahni*) - T,CH	Hancock, Claiborne, Grainger Counties
Chub, spotfin (*Hybopsis monacha*) - T,CH	Hawkins, Sullivan, Morgan, Fentress, and Cumberland Counties
Dace, blackside (*Phoxinus cumberlandensis*) - T	Upper Cumberland River System (Scott, Campbell, and Claiborne Counties)
Darter, amber (*Percina antesella*) - E,CH	Conasauga R., Polk County

TENNESSEE (Cont'd)

	General Distribution
Darter, boulder (Etheostoma [Nothonotus] sp.) - E	Lower Elk River System, Giles County
Darter, slackwater (Etheostoma boschungi) - T,CH	Wayne and Lawrence Counties
Darter, snail (Percina tanasi) - T	Knox, Loudon, Meigs, Polk, Bradley/McMinn, Hamilton, Marion, and Giles Counties
Logperch, Conasauga (Percina jenkinsi) - E,CH	Conasauga R., Polk County
Madtom, smoky (Noturus bailey) - E,CH	Citico Creek, Monroe County
Madtom, yellowfin (Noturus flavipinnis) - T,CH	Claiborne and Hancock Counties; Monroe County (Citico Creek)
Shiner, blue (Cyprinella caerulea) - T	Conasauga River and Minnewauga Creek
Mollusks	
Mussel, Alabama lamp pearly (Lampsilis virescens) - E	Estill Fork, Franklin County
Mussel, Appalachian monkeyface pearly (Quadrula sparsa) - E	Powell River
Mussel, birdwing pearly (Conradilla caelata) - E	Powell, Clinch, Elk and Duck Rivers
Mussel, Cumberland bean pearly (Villosa trabilis) - E	Big S. Fork of Cumberland River
Mussel, Cumberland monkeyface pearly (Quadrula intermedia) - E	Elk, Powell and Duck Rivers
Mussel, Cumberland pigtoe (Pleurobema gibberum) - E	Caney Fork River System
Mussel, dromedary pearly (Dromus dromas) - E	Powell, Clinch, Cumberland and Tennessee Rivers
Mussel, fine-rayed pigtoe pearly (Fusconaia cuneolus) - E	Powell, Clinch, Elk, Sequatchie, N. Fork Holston and Little Rivers

Mussel, green-blossom pearly (Epioblasma [=Dysnomia] torulosa gubernaculum) - E	Clinch River
	General Distribution
Mussel, little-wing pearly (Pegias fabula) - E	Cave Creek
Mussel, orange-footed pearly (Plethobasus cooperianus) - E	Tennessee and Cumberland Rivers
Mussel, pale lilliput pearly Toxolasma [= Carunculina] cylindrella) - E	Historic; no recent TN records
Mussel, pink mucket pearly (Lampsilis orbiculata) - E	Tennessee, Clinch and Cumberland Rivers
Mussel, rough pigtoe pearly (Pleurobema plenum) - E	Clinch, Cumberland and Tennessee Rivers
Mussel, shiny pigtoe pearly (Fusconaia edgariana) - E	Powell, Clinch and Elk Rivers
Mussel, tan riffle shell (Epioblasma [=Dysnomia] walkeri) - E	Historic; no recent TN records
Mussel, tuberculed-blossom pearly (Epioblasma [=Dysnomia] torulosa torulosa) - E	Possibly extinct
Mussel, turgid-blossom pearly (Epioblasma [=Dysnomia] turgidula) - E	Possibly extinct
Mussel, white warty-back pearly (Plethobasus cicatricocus) - E	Tennessee River
Mussel, yellow-blossom pearly (Epioblasma [=Dysnomia] florentina florentina) - E	Possibly extinct
Snail, Chittenango ovate amber (Succinea chittenangoensis) - T	Monroe County
Snail, painted snake coiled forest (Anguispira picta) - T	Franklin County
Arthropods:	
Crayfish, Nashville (Orconectes shoupi) - E	Mill Creek, Davidson and Williamson Counties
Plants	
Arenaria cumberlandensis (Cumberland sandwort) - E	Cumberland plateau north central (Fentress, Morgan, Pickett, and Scott Counties)

	General Distribution
Conradina verticillata (Cumberland rosemary) - T	Big South Fork Cumberland River, Morgan, Scott, and Fentress Counties; Caney Fork River, Cumberland and White Counties; Obed River System, Morgan and Cumberland Counties
Astragalus bibullatus (Guthrie's ground-plum) - E	Rutherford County
Dalea foliosa (=Petalostanum foliosum) - (Leafy prairie clover) - E	Rutherford, Wilson, Marshall, Bedford, Davidson, Williamson, and Maury Counties
Echinacea tennesseensis (Tennessee coneflower) - E	Davidson, Rutherford, Wilson Counties
Isotria medeoloides (small whorled pogonia) - E	Hamilton County
Phyllitis scolopendrium var. Americana (American Hart's Tongue Fern) - T	Marion County
Pityopsis ruthii (Ruth's golden aster) - E	Polk County
Scutellaria montana (large-flowered skullcap) - E	Hamilton and Marion Counties
Solidago spithamaea (Blue Ridge goldenrod) - T	Carter County
Xyris Tennesseensis (Tennessee yellow-eyed grass) - E	Lewis County

M.2 - SITE MAINTENANCE FORM

ACTION: _

EPA ID : TND003381308

SITE NAME: ACTIVATED METALS SOURCE: S

STREET : SEVIER INDUSTRIAL PARK CONG DIST: 01

CITY : COSBY ZIP: 37722

CNTY NAME: COCKE CNTY CODE : 029

LATITUDE : 35/48/48.0 LONGITUDE : 083/14/48.0

LL-SOURCE: R LL-ACCURACY:

SMSA : HYDRO UNIT: 06010106

INVENTORY IND. Y REMEDIAL IND. Y REMOVAL IND. N FED FAC IND. N

NPL IND: N NPL LISTING DATE: NPL DELISTING DATE:

SITE/SPILL IDS:

RPM NAME: RPM PHONE: - -

SITE CLASSIFICATION: SITE APPROACH:

DIOXIN TIER: REG FLD1: REG FLD2: 7

RESP TERM: PENDING ( ) NO FURTHER ACTION ( )

ENF DISP: NO VIABLE RESP PARTY ( ) VOLUNTARY RESPONSE ( )
ENFORCED RESPONSE ( ) COST RECOVERY ( )

SITE DESCRIPTION:

M.2 - PROGRAM MAINTENANCE FORM

* ACTION: _ *

SITE: ACTIVATED METALS

EPA ID: TND003381308 PROGRAM CODE: H01 PROGRAM TYPE: * _ *

PROGRAM QUALIFIER: ALIAS LINK : * ___ __ *

PROGRAM NAME: SITE EVALUATION * _____ *

DESCRIPTION:

* _____ *

* _____ *

* _____ *

* _____ *

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ACTIVATED METALS
PROGRAM: SITE EVALUATION

EPA ID: TND003381308 PROGRAM CODE: H01 EVENT TYPE: DS1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: E * _ ___ _ *

EVENT NAME: DISCOVERY STATUS: *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	* __/__/__	__/__/__	__/__/__ *
COMP :	COMP :	COMP . 03/01/79	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
			0	* _____	_____	—	___ *

M.2 - EVENT MAINTENANCE FORM

* ACTION: _ *

SITE: ACTIVATED METALS
PROGRAM: SITE EVALUATION

EPA ID: TND003381308 PROGRAM CODE: H01 EVENT TYPE: PA1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: S * _ ___ _ *

EVENT NAME: PRELIMINARY ASSESSMENT STATUS: * *

DESCRIPTION:

* _____ *
* _____ *
* _____ *
* _____ *

ORIGINAL	CURRENT	ACTUAL			
START:	START:	START:	__/__/__	__/__/__	__/__/__
COMP :	COMP :	COMP : 04/28/87	__/__/__	__/__/__	__/__/__

HQ COMMENT:

* _____ *

RG COMMENT:

* _____ *

COOP AGR #	AMENDMENT #	STATUS	STATE %				
			0	_____	_____	__	___

M.2 - EVENT MAINTENANCE FORM

ACTION: _

SITE: ACTIVATED METALS
PROGRAM: SITE EVALUATION

EPA ID: TND003381308 PROGRAM CODE: H01 EVENT TYPE: SI1

FMS CODE: EVENT QUALIFIER : EVENT LEAD: E _ ___ _

EVENT NAME: SITE INSPECTION STATUS:

DESCRIPTION:

ORIGINAL	CURRENT	ACTUAL
START:	START:	START: __/__/__ __/__/__ __/__/__
COMP :	COMP :	COMP : 02/01/80 __/__/__ __/__/__ __/__/__

HQ COMMENT:

RG COMMENT:

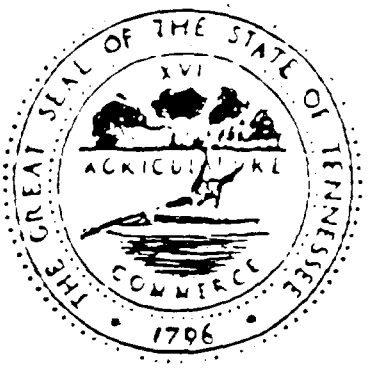
COOP AGR #	AMENDMENT #	STATUS	STATE %
			0

M.2 - COMMENT MAINTENANCE FORM

SITE: ACTIVATED METALS

EPA ID: TND003381308

COM NO	COMMENT		ACTION	
001	PREVIOUS P.A. DONE BY STATE IN 79/0	*	_	*
	3.	*		*



Potential Hazardous Waste Site

PRELIMINARY ASSESSMENT

ACTIVATED METALS

TND 003381308

COSBY, COCKE COUNTY, TENNESSEE

PLEMINARY ASSESSMENT

ACTIVATED METALS

TND 003381308

I. HISTORY OF SITE

The Activated Metals site located 1¼ miles north of Cosby, Cocke County, Tennessee was used to dispose of wastes generated at the Activated Metals Plant located in the Sevierville Industrial Park, Sevierville, Tennessee. The land that the waste was disposed on is owned by:

The Estate of A. J. King Jr.

P. O. Box 32

Sevierville, Tennessee 37862

Activated Metals is a manufacturer of hydrogenation catalysts, sponge nickel catalysts and nickel shalts. The waste of concern was generated by the periodic cleaning of sodium aluminate crystalization tanks. The waste was composed of varing amounts of spent nickel catalyst, sodium aluminate, sodium hydroxide and aluminum hydroxide.

II. NATURE OF HAZARDOUS MATERIALS

The sodium hydroxide and aluminum hydroxide are of a low hazard status based upon their high Ph. The nickel sponge waste has a very high hazard due to the metal nickel which has a high toxicity and persistance level.

III. DESCRIPTION OF HAZARDOUS CONDITIONS, INCIDENTS AND PERMIT VIOLATIONS

The care taken and the conditions under which the waste was disposed are unknown. If improper disposal practices were used, then there exists the potential for contaminate migration by both surface and groundwater routes. There are no other identified incidents of permit violations.

IV. ROUTES OF CONTAMINATION

If the waste was improperly disposed there exists the potential for contaminaiton by both run-off and infiltration migration from the site.

V. POSSIBLE AFFECTED POPULATIONS AND RESOURCES

Possible surface and groundwater contamination by migration of the wastes. Utilities water for domestic use is supplied to the area but it is highly possible that there are unknown hold-outs that through choice are still using groundwater for domestic use. The population of Cocke County in 1980 was 28792 people.

VI. RECOMMENDATIONS AND JUSTIFICATIONS

There is no evidence that past waste handling at this site is affecting the population or environment. However, due to the limited sources of information available, the complete history of waste handling practice is incomplete. For this reason a site inspection with a low priority is recommended for this site.

VIII. REFERENCE TO SUPPORTING DATA SOURCES

1. Geologic Map of Tennessee, East Sheet, William D. Hardeman, 1966.

2. Hartford, Tennessee - North Carolina 7½ Minute Quadrangle Topographic Map (1940 (Photo Revised 1968)).

3. Tennessee 1980 Census of Population, U. S. Department of Commerce, Bureau of The Census.

4. Site Report by Pam Pulliam, TDH&E, DSWM, dated 11/23/83.

5. Direcotry of Tennessee manufacturers, 1986.

CR/lag SF #3

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

EPA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
TN	D 003381308

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Activated Metals	Off of Highway 32

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Cosby	TN	37722	Cocke	29	1

09 COORDINATES LATITUDE	LONGITUDE
32° 50' 03".	83° 14' 37".

10 DIRECTIONS TO SITE (Starting from nearest public road)

West off of I-40 at Foothills Parkway. Go Foothill Parkway west to Highway 32. Go north on Highway 32. Go 1¼ miles north of Cosby, Tennessee. The site is adjacent to Cosby Creek.

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing, residential)
Estate of A.J. King Jr.	P.O. Box 32

03 CITY	04 STATE	05 ZIP CODE	06 TELEPHONE NUMBER
Sevierville	TN	37862	(615) 453-7177

07 OPERATOR (If known and different from owner)	08 STREET (Business, mailing, residential)
Same As Owner	

09 CITY	10 STATE	11 ZIP CODE	12 TELEPHONE NUMBER
			( )

13 TYPE OF OWNERSHIP (Check one)

☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL

☐ F. OTHER: _____ (Specify) ☐ G. UNKNOWN

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

☒ YES DATE 2/13/80 (MONTH DAY YEAR)
☐ NO

BY (Check all that apply)

☐ A. EPA ☐ B. EPA CONTRACTOR ☒ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): _____

02 SITE STATUS (Check one)	03 YEARS OF OPERATION		
☐ A. ACTIVE ☒ B. INACTIVE ☐ C. UNKNOWN	1965 (BEGINNING YEAR)	1979 (ENDING YEAR)	☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Waste accumulated from cleaning sodium aluminate crystalization tanks.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Corrosive wastes and spent nickel catalyst.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH (Inspection required promptly) ☐ B. MEDIUM (Inspection required) ☒ C. LOW (Inspection on time available basis) ☐ D. NONE (No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NUMBER
Neil Brank	Activated Metals	(615) 453-7177 (615) 984-0704

04 PERSON RESPONSIBLE FOR ASSESSMENT	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NUMBER	08 DATE
Charles R. Rush	TDH&E	Superfund	(615) 741-6287	8/29/86 (MONTH DAY YEAR)

EPA FORM 2070-12 (7-81)

Activated Metals

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 003381308

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- [X] A SOLID
- [ ] B POWDER, FINES
- [X] C SLUDGE
- [ ] D OTHER (Specify)
- [ ] E SLURRY
- [ ] F LIQUID
- [ ] G GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS: unknown
CUBIC YARDS:
NO. OF DRUMS:

03 WASTE CHARACTERISTICS (Check all that apply)

- [X] A TOXIC
- [ ] B CORROSIVE
- [ ] C RADIOACTIVE
- [ ] D PERSISTENT
- [ ] E SOLUBLE
- [ ] F INFECTIOUS
- [ ] G FLAMMABLE
- [ ] H IGNITABLE
- [ ] I HIGHLY VOLATILE
- [ ] J EXPLOSIVE
- [ ] K REACTIVE
- [ ] L INCOMPATIBLE
- [ ] M NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	72,800	kg/yr	aluminate sludge
OLW	OILY WASTE			
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	6,000	pounds	nickel catalyst

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SLU	Sodium Aluminate	1302427	landfill/unknown	unknown	
SLU	Sodium Hydroxide	1310732	landfill/unknown	unknown	
SLU	Aluminum Hydroxide	21645512	landfill/unknown	unknown	
MES	Nickel Catalyst	999	landfill/unknown	unknown	

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports.)

See References

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 003381308

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. GROUNDWATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1182 — 04 NARRATIVE DESCRIPTION

The site lies in a folded and fractured geological area and if any contaminates are present, then there exists the potential for ground water contamination via vertical migration.

01 [X] B. SURFACE WATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: 1187 — 04 NARRATIVE DESCRIPTION

The site lies adjacent to Cosby Creek and if any contaminates exist, then there is a possibility for contamination by surface runoff such as rain water.

01 [ ] C. CONTAMINATION OF AIR — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] D. FIRE/EXPLOSIVE CONDITIONS — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] E. DIRECT CONTACT — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [X] F. CONTAMINATION OF SOIL — 02 [ ] OBSERVED (DATE _____) — [X] POTENTIAL — [ ] ALLEGED
03 AREA POTENTIALLY AFFECTED: 1.03 (Acres) — 04 NARRATIVE DESCRIPTION

The condition of the waste site is unknown, but if the waste migrates, there is a potential for soil contamination.

01 [ ] G. DRINKING WATER CONTAMINATION — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] H. WORKER EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 WORKERS POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

01 [ ] I. POPULATION EXPOSURE/INJURY — 02 [ ] OBSERVED (DATE _____) — [ ] POTENTIAL — [ ] ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

Activated Metals

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
TN	D 003381308

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION (Include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES (Spills/runoff/standing liquids/leaking drums) — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

01 ☐ N. DAMAGE TO OFFSITE PROPERTY — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ☐ OBSERVED (DATE: _____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 1182

IV. COMMENTS

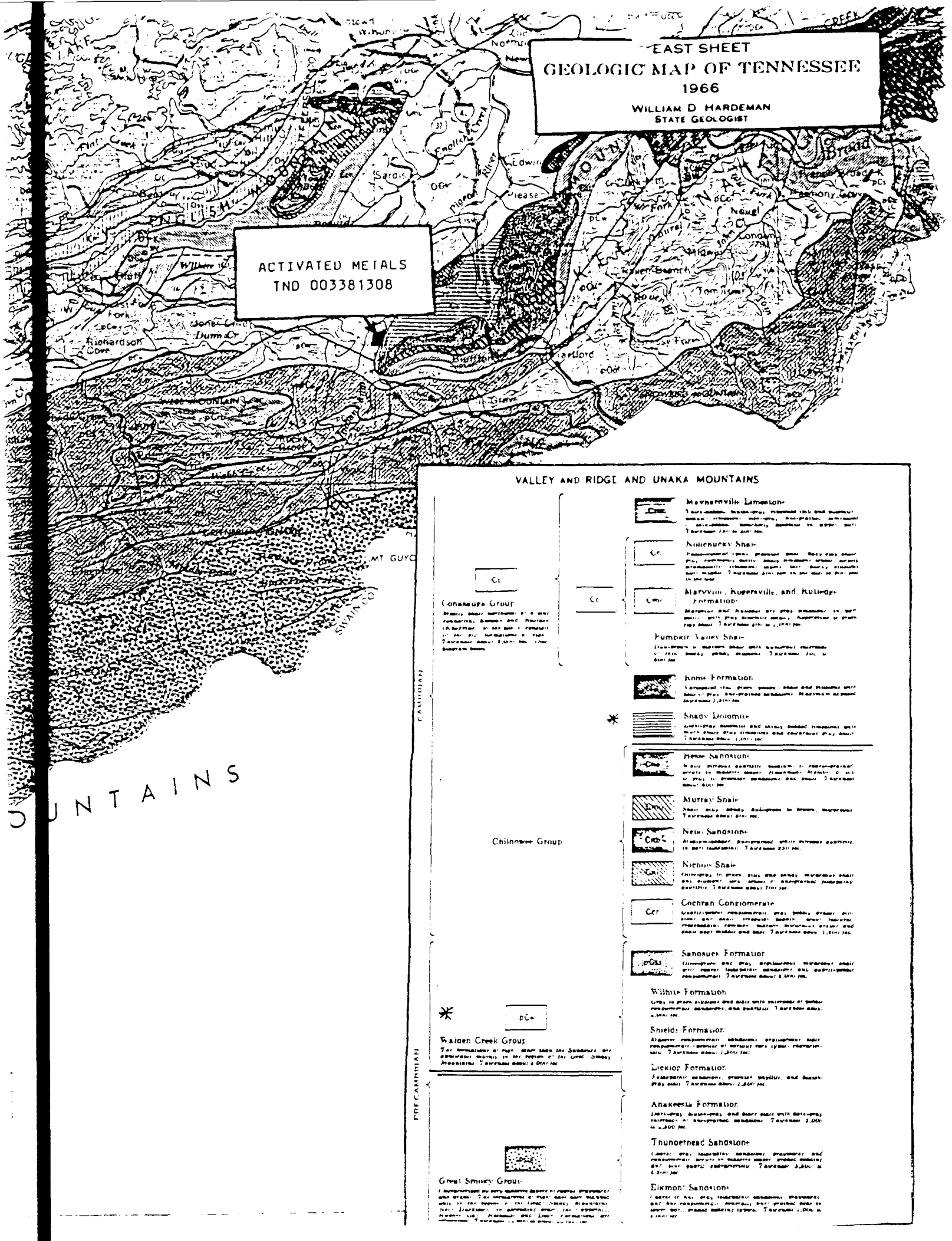
V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis reports)

See References

EPA FORM 2070-12 (7-81)

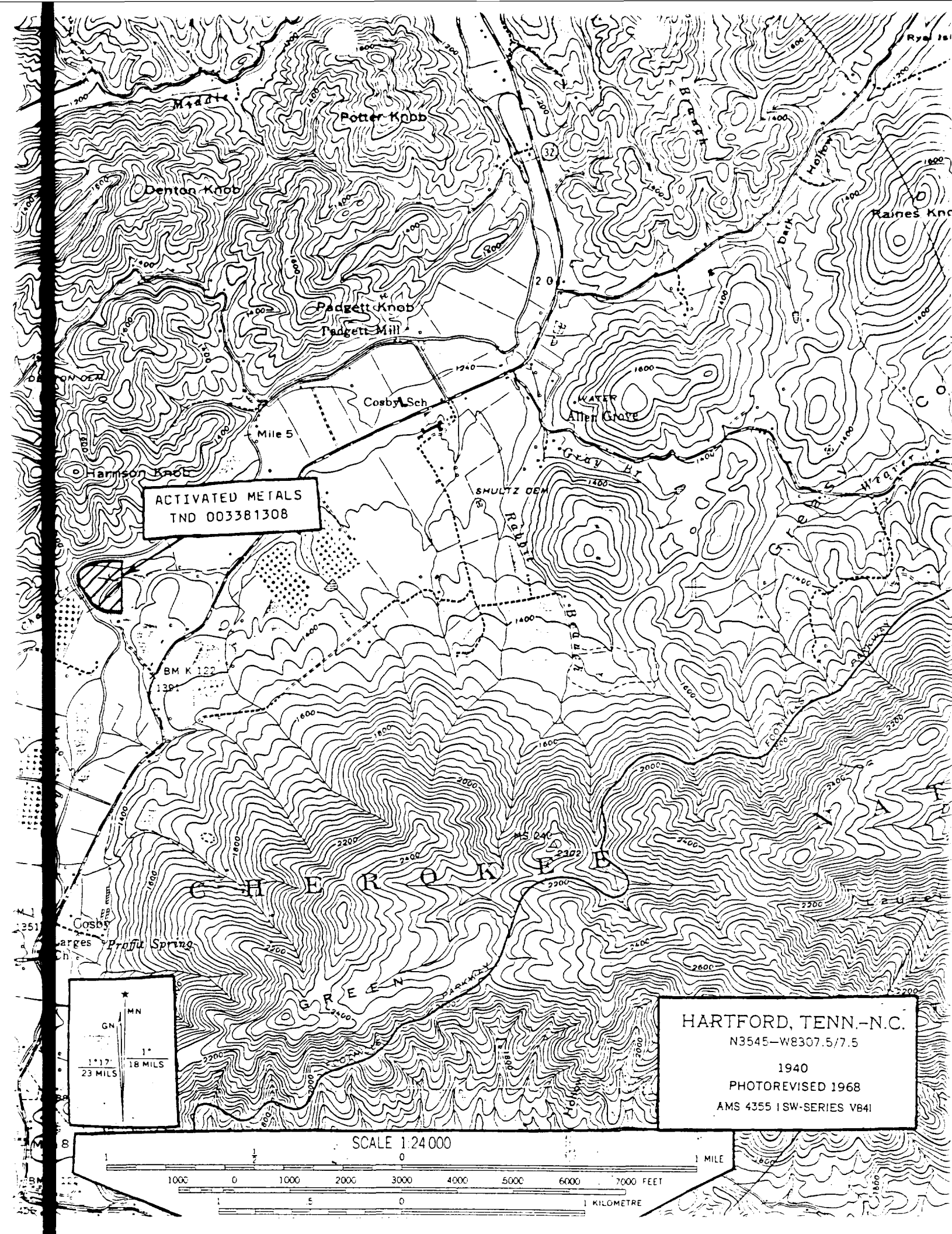
Site No. TND 003381308

Reference No. 1


EAST SHEET
GEOLOGIC MAP OF TENNESSEE
1966
WILLIAM D HARDEMAN
STATE GEOLOGIST
ACTIVATED METALS
TND 003381308
VALLEY AND RIDGE AND UNAKA MOUNTAINS
Maynardville Limestone
Nolichucky Shale
Maryville, Rogersville, and Rutledge Formations
Pumpkin Valley Shale
Rome Formation
Shady Dolomite
Conasauga Group
Chilhowee Group
Frieze Sandstone
Murray Shale
Nebo Sandstone
Nichols Shale
Cochran Conglomerate
Sandsuch Formation
Wilhite Formation
Shields Formation
Lickton Formation
Anakeesta Formation
Thunderhead Sandstone
Elkmont Sandstone
Walden Creek Group
Great Smoky Group
CAMBRIAN
PRECAMBRIAN
MT GUYOT
SWAIN CO

Site No. TND 003381308

Reference No. 2


Potter Knob
Denton Knob
Padgett Knob
Padgett Mill
Cosby Sch
Mile 5
Harmison Knob
ACTIVATED METALS
TND 003381308
Allen Grove
WATER
Gray Bt
SHULTZ CEM
Rabbit
BM K 122
MS 240
2302
CHEROKEE
Cosby
Profit Spring
GREEN
PARKWAY
Raines Kno
Hollow
Bark
MN
GN
1°17'
23 MILES
1°
18 MILES
HARTFORD, TENN.-N.C.
N3545—W8307.5/7.5
1940
PHOTOREVISED 1968
AMS 4355 I SW-SERIES V841
SCALE 1:24 000
1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETRE

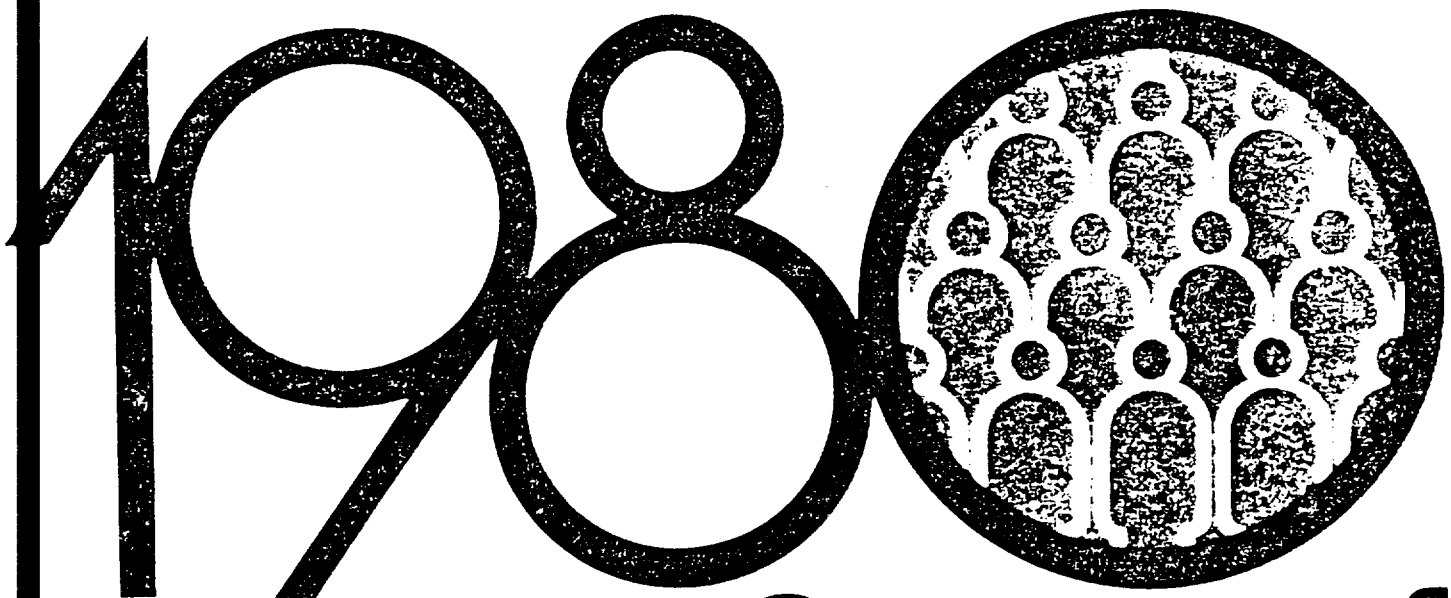
Site No. TND 003381308

Reference No. 3

CHARACTERISTICS OF THE POPULATION

Number of Inhabitants

TENNESSEE



Census of Population

U.S. Department of Commerce
BUREAU OF THE CENSUS

able Population of County Subdivisions: 1960 to 1980

[Total population of a place in two or more county subdivisions appears in table 5. Counts relate to county subdivisions and places as defined at each census. For meaning of symbols, see introduction]

County Subdivisions	1980	1970	1960
The State	4 591 120	3 926 018	3 567 089
[illegible]berson County[1]	67 346	60 300	60 032
Clinton [illegible]on	10 971	...	...
Clinton [illegible]wn	5 245	4 794	4 943
Clinton [illegible] division	9 000	6 541	5 242
South [illegible]on (CDP)	1 671	1 484	1 356
Lake City [illegible]t division	5 078	4 079	...
Lake [illegible]own[1]	2 335	1 923	1 914
Lake City [illegible]st division	2 774	2 140	...
New Rive[illegible]nsion	451	776	1 279
Norris di[illegible]n	7 566	5 900	5 699
Norris[illegible][1]	1 374	1 359	1 389
Oak Ridg[illegible]nsion	25 300	26 829	27 124
Oak R[illegible] city (pt.)	25 300	26 829	27 124
Walden [illegible] division	6 206	5 191	4 667
Oliver [illegible]ngs town (pt.)[1]	2 525	2 208	336
[illegible]dford County[2]	27 916	25 039	23 150
Bedford [illegible]or	1 930	...	...
Bell Buck[illegible]vision	1 918	1 797	1 693
Bell B[illegible] town[2]	450	393	318
Hot Cre[illegible]rmony division	2 078	...	...
Norma[illegible] town	118	122	119
Shelbyvil[illegible]vision	17 345	...	...
Shelby[illegible] city[2]	13 530	12 262	10 466
Unionvil[illegible]nsion	3 007	2 217	2 127
Wartrace[illegible]sion	1 638	1 636	1 632
Wartr[illegible]town	540	616	545
[illegible]nton County[3]	14 901	12 126	10 662
Big Sand[illegible]vision	2 813	2 052	1 927
Big S[illegible] town	650	539	492
Camden [illegible]or	10 814	...	...
Camd[illegible]wn[3]	3 279	3 052	2 774
Johnsonv[illegible]sion	1 274	1 180	1 227
[illegible]easoe County[4]	9 478	7 643	7 811
Cumberl[illegible] Plateau division	2 676	2 505	2 379
Pleasa[illegible] Valley division	5 050	3 979	4 209
Pleas[illegible]wn[4]	2 085	1 454	951
Walden [illegible]e division	1 752	1 159	1 223
[illegible]oun[illegible] County[5]	77 770	63 744	57 525
Crinfield [illegible]or	4 259	3 001	2 404
Crenesha[illegible]vision	6 229	4 330	4 021
Frenc[illegible]e city[5]	694	575	606
Marys[illegible] city (pt.)[5]	2	...	...
Gower d[illegible]r	6 106	4 229	4 354
Harrisvill[illegible]ace division	51 690	...	...
Alcoa[illegible][5]	6 870	7 739	6 395
Eagle[illegible] Village (CDP)	5 331	5 345	(NA)
Maryv[illegible] city (pt.)[5]	17 478	13 808	10 348
Rockfo[illegible] city[5]	567	...	...
Townsen[illegible]vision	4 335	3 851	2 431
Townse[illegible] city[5]	351	267	283
Wildwoo[illegible]vision	5 149	3 344	3 115
Charlest[illegible]vision	67 547	50 686	38 324
Charl[illegible] town[6]	7 994	...	...
Cleveland[illegible]vision	756	792	764
Cleve[illegible] city[6]	46 308	...	...
East [illegible]eland (CDP)	26 415	21 446	16 196
South[illegible]eland (CDP)	1 655	1 870	1 452
Wilde[illegible] Lake (CDP)	4 360	5 070	1 512
South B[illegible]y division	1 642	...	...
Southe[illegible]adley division	3 245	...	...
West Be[illegible]y division	3 917	...	...
[illegible]ampbell County[7]	6 083	...	...
Caryville[illegible]nsion	34 923	26 045	27 936
Cary[illegible] town[7]	3 968	2 800	3 027
Clinchmo[illegible]vision	2 039	648	...
Elk Valle[illegible]vision	331	399	735
Jellico[illegible] city (pt.)[7]	5 035	4 065	4 979
Fincastle[illegible]sion	2 633	2 235	2 210
Habersh[illegible] division	3 771	...	...
Jellico[illegible] city (pt.)[7]	4 066	3 351	4 280
La Follet[illegible]division	165	...	...
Jacksb[illegible]o town[7]	17 752	...	...
La Fo[illegible]e city[7]	722	689	...
[illegible]Connor County[8]	8 198	6 902	6 204
North C[illegible]on division	10 234	8 467	8 537
Aubu[illegible]rn town	3 013	...	...
Wood[illegible]y town (pt.)[8]	204	213	256
Plateau [illegible]he Borrens division	195	...	...
South C[illegible]on division	2 370	1 912	1 673
Wood[illegible]y town (pt.)[8]	4 851	...	...
[illegible]Carroll County[9]	1 965	1 725	1 562
Brucetto[illegible]vision	28 285	25 741	23 476
Bruc[illegible] town[9]	4 527	4 144	5 059
Hollo[illegible]ock town[9]	1 579	1 450	1 158
Cedar [illegible]e division	955	722	568
Clarksb[illegible]division	2 359	2 294	2 247
Clar[illegible]g town[9]	2 210	1 960	2 038
Huntingd[illegible] division	400	349	...
Hunt[illegible]on town[9]	7 176	...	...
McKenzi[illegible]vision	3 962	3 661	2 119
McK[illegible]e city (pt.)[9]	7 108	6 270	5 350
Trezevan[illegible]vision	5 089	4 612	3 623
	4 905	4 771	4 459

County Subdivisions	1980	1970	1960
Carroll County—Con.			
Trezevant division—Con.			
Atwood town[9]	1 143	937	461
McLemoresville town[9]	311	328	284
Trezevant town[9]	921	877	944
Carter County[10]	50 205	43 259	4 578
Biltmore division	4 782	3 836	3 922
Biltmore (CDP)	1 962	...	...
Johnson City city (pt.)[10]	38	...	...
Watauga city[10]	376	314	...
Elizabethton division	26 859	...	...
Central (CDP)	2 630	...	...
Elizabethton city[10]	12 431	12 269	10 896
Johnson City city (pt.)[10]	256	...	...
Pine Crest (CDP)	3 992	...	...
Valley Forge (CDP)	2 180	...	...
Laurel Fork division	1 522	...	...
Roan Mountain division	3 469	...	...
Roan Mountain (CDP)	1 108	...	...
Stony Creek division	6 240	5 252	5 085
Hunter (CDP)	1 386	...	...
Tiger Valley division	5 333	...	...
Hampton (CDP)	2 236	1 100	1 048
Cheatham County[11]	21 616	13 199	9 428
Ashland City division	11 019	6 931	4 668
Ashland City town[11]	2 329	2 027	1 402
Kingston Springs division	4 895	3 015	2 160
Kingston Springs town[11]	1 017	312	...
Pegram town[11]	1 081	...	...
Pleasant View division	5 702	3 253	2 600
Chester County[12]	12 727	9 927	9 569
East Chester division	3 885	3 196	3 571
Enville town (pt.)[12]	234	224	247
Milledgeville town (pt.)	118	101	...
West Chester division	8 842	6 731	6 056
Henderson city[12]	4 449	3 581	2 691
Silerton town (pt.)	2	1	3
Claiborne County[13]	24 595	19 420	19 067
Big Barren Creek division	2 374	2 002	1 659
Clairfield division	1 425	1 262	1 928
Cumberland Gap division	4 968	3 755	3 060
Cumberland Gap town	263	231	291
Harrogate–Shawanee (CDP) (pt.)	2 530	...	...
Powell Valley division	5 367	3 758	4 243
Harrogate–Shawanee (CDP) (pt.)	–	...	...
Tazewell division	10 461	...	...
New Tazewell town[13]	1 677	1 192	769
Tazewell town[13]	2 090	1 650	264
Clay County[14]	7 676	6 624	7 289
Celina division	4 151	3 706	4 519
Celina town[14]	1 580	1 372	1 228
Fairview division	458	588	463
Hermitage Springs division	3 067	2 530	2 787
Cocke County[15]	28 792	25 283	23 390
Centerview division	3 015	2 564	2 609
Del Rio division	1 853	1 643	1 957
Hartford division	2 971	2 472	2 827
Newport division	17 788	...	...
Newport city[15]	7 580	7 328	6 448
Parrottsville division	3 165	2 777	2 466
Parrottsville town	318	115	91
Coffee County[16]	38 311	32 572	28 603
Beech Grove division	1 206	1 103	1 224
Hillsboro division	2 410	2 062	1 892
Manchester division	14 307	...	...
Manchester city[16]	7 250	6 208	5 935
Summitville division	2 880	2 006	1 881
Tullahoma division	17 508	...	...
Tullahoma city (pt.)[16]	15 492	14 771	12 092
Crockett County[17]	14 967	14 402	14 594
Alamo division	4 282	4 236	3 809
Alamo town	2 615	2 499	665
Bells division	3 297	3 155	3 386
Bells town[17]	1 571	1 474	1 237
Friendship division	2 114	1 856	2 166
Friendship town	765	442	399
Gadsden division	2 233	994	2 027
Gadsden town	683	623	622
Maury City division	3 015	3 161	3 210
Maury City town[17]	989	813	824
Cumberland County[18]	28 676	20 739	19 135
Crab Orchard division	2 992	2 921	3 211
Crab Orchard town (pt.)[18]	910	...	...
Crossville division	13 276	...	...
Crab Orchard town (pt.)[18]	155	...	...
Crossville city	6 394	5 381	4 866
Crossville North division	5 051	...	...
Lantana division	5 194	2 433	2 032
Moviland–Pleasant Hill division	4 161	3 100	3 615
Pleasant Hill town[18]	371	293	267
Davidson County[19]	477 811	447 877	396 743
Metropolitan Government division	472 811	447 877	...
Belle Meade city[19]	3 182	2 933	3 082
Berry Hill city[19]	1 113	1 517	88
Forest Hills city[19]	4 516	4 055	2 [illegible]

See footnotes at end of table

Site No. TND 003381308

Reference No. 4

TND000538613 DATE 11/22/83

Activated Metals (& Chemicals Inc.)

Off Highway 32

Cosby, TN - COCKE Co.

① P.O. Box 32 Sevierville, TN 37862

Sevier Industrial Park

615-453-7177

Jim King, Sec. & Treas.

Listed as a generator on RCRA notifiers list (7/19/83)

List indicates that interim status has been withdrawn.

② County files: No county file listed

③ No listing in NOTIS Data management system

④ Generator notification list (2/9/82)

Page 0081

	Phone
Owner: Estate of A.J. King, Jr.	(615)453-7177
manager: Jim King	(") " "
Contact: Neil Brank	(") " "

SIC: 3819 15 years in operation

Emergency contacts:

(A) Jim King	(615)453-4060
(B) Helen Galyon	(") " - 5612
(C) Neil Brank	(") 984 - 0704
(D) S.N. Milazzo	803 288 - 2646

Above information received 12/17/80

⑤ Hazardous waste description (2/10/82)

Waste Name: Non-listed corrosive wastes

Criteria: C

Physical form: 5, 11.0% solid

GF: 2

6100 Kg/mon (AVG) 72,800 Kg/yr

18,200 Kc stored 180 days

Shipping name: Sodium aluminate

Generation process: ~~co~~ crystallization of sodium aluminate in storage tanks

Chemical character:

pH: 12-

Components and range:	CONC: V
A. Sodium Aluminate	8 - 10
B. Sodium Hydroxide	1 - 2
C. Aluminum Hydroxide	5 - 6

The chemical composition of the waste is variable chem. char. based on several analyses.

Generation rate: The waste is accumulated from cleaning sodium aluminate storage tanks so the generation rate is based on semi-annual cleanings. If transported as a HW activated metal needs to be permitted.

(6) Not listed in facility process report 10/17/83

(7) Facility inventory subsystem - notifiers report 11/7/80 lists AM as a generator not requiring a permit.

(8) Indices show AM as a transporter but not a generator (10/19/83)

(9) Not on inspection list

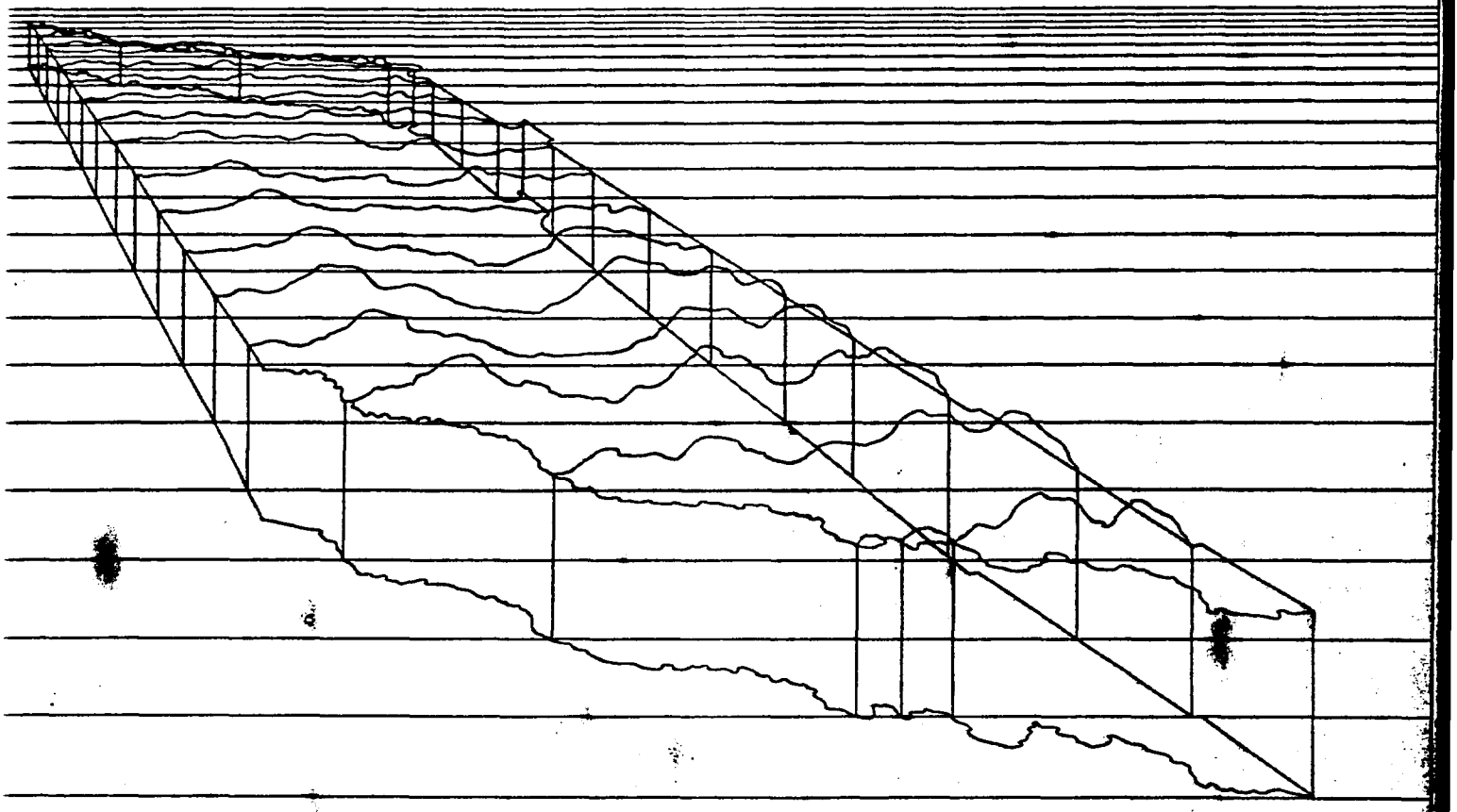
Pamela Pulliam

Site No. TND 003381308

Reference No. 5

1986
Directory of Tennessee Manufacturers

Published by M. Lee Smith Publishers & Printers



Annual Sales: 4000000
Finished Zippers 3964

OWARD INDUSTRIES INC.
Industrial Park Road
PO Box 275
Dunlap 37327
(615) 949-2156
Established 1971
Bill Little, President
Dennis Milton, Export Manager
Vicki Mears, Office Manager
Market: International
Employment: 150
Plant Size: 32000
Women's Blouses 2331

WICKES COMPANY
3540 Ocean Park Boulevard
PO Box 4056
Santa Monica CA 90405
(215) 452-0161

TTY KAT KASUALS INC.
Old Hill Road
PO Box 115
Dunlap 37327
(615) 949-2025
Established 1974
Nick Romita, Owner
Barbara Tucker, Credit Manager
Toney Romita, Marketing Manager
Nick Romita, Personnel Manager
Market: National
Employment: 25
Plant Size: 6000
Men's Shirts 2321
Women's Shirts 2331
Children's Shirts 2361

evier County atlinburg

ESCENT COLOR PRINTING. OMPANY
Carertown Road
PO Box 113
Gatlinburg 37738
(615) 436-5069
Established 1969
William W. McCarter, Owner
Terri Waters, Office Manager
Craig McCarter, Personnel Manager
Blanche McCarter, Public Relations
Market: Regional
Employment: 12
Plant Size: 5000
Annual Sales: 300000
Brochures 2721
Letterheads 2751
Envelopes 2751

LASSBLOWERS OF GATLINBURG C.
PO Box 723
Gatlinburg 37738
(615) 436-7615
Established 1966
Robert Myrick, President
Jo Myrick, Vice President
Market: Local
Employment: 4
Plant Size: 2000
Annual Sales: 350000
Glass Blowing 3229
Novelties 3229
Candies 3999

OWARD ENTERPRISES INC. & ANDELIER
915 Parkway
Gatlinburg 37738
(615) 436-5206
Established 1959
James Holt, Vice President
Joseph Simpson, Office Manager
Market: National
Employment: 8
Plant Size: 10000
Candies 3999

KEARS BROOM SHOP
Route 1
Gatlinburg 37738
(615) 436-4343
Established 1928
Larry Kears, Owner
Market: National
Employment: 3
Hearth Brooms 3991

MAPLES FORGE INC.
805 Parkway
Gatlinburg 37738
(615) 436-9488
Established 1973
Roy Maples, Co-Owner
Betty Maples, Co-Owner
Market: National
Employment: 3
Annual Sales: 100000
Blacksmith Shop 3462
Fireplace Accessories 3429

E.L. REAGAN FURNITURE SHOP
PO Box 3
Gatlinburg 37738
(615) 436-5289
Established 1910
Harlan Reagan, Owner
Market: Regional
Employment: 7
Plant Size: 1800
Annual Sales: 175000
Custom Wooden Furniture 2511

VILLAGE CRAFT SHOP
Route 1
Gatlinburg 37738
(615) 436-4533
Established 1941
Earl Huskey, Owner
Market: Local
Employment: 1
Plant Size: 2000
Annual Sales: 40000
Small Wooden Tables 2511
Small Wooden Novelties 2499

THE WOOD WHITTLERS
Route 3, Box 5
Gatlinburg 37738
(615) 436-7187
Established 1944
Ronnie Compton, President
Market: Local
Employment: 12
Custom Designed Furniture 2511
Novelties 3229

Sevier County Kodak

FORTENBERRY SAUSAGE COMPANY
Route 2
Kodak 37764
(615) 933-2568
Established 1946
Arvil Fortenberry, President
Joyce Fortenberry, Office Manager
Market: State
Employment: 3
Sausage 2013
Boned Beef 2011
Bagged Ice 2097

THE SWAGGERTY'S SAUSAGE COMPANY
Swaggerty Road, Route 2
Kodak 37764
(615) 933-2625
Established 1930
Kyle Swaggerty, President
Market: Regional
Employment: 39
Sausage 2013

Sevier County Pigeon Forge

PIGEON FORGE POTTERY
Middle Creek Road, Box 1050
Pigeon Forge 37863
(615) 453-3883
Established 1946
D.J. Ferguson, Owner
Market: Local
Employment: 17
Pottery Giftware 3269

Sevier County Sevierville

ACTIVATED METALS & CHEMICALS INC.
Industrial Park
PO Box 32
Sevierville 37862
(615) 453-7177
Established 1963
Daniel R. King, President
A. King III, Exec. Vice President
Helen Galyon, Office Manager
Jack Etherton, Production Manager
Market: International
Employment: 28
Plant Size: 100000
Hydrogenation Catalysts 2819
Sponge Nickel Catalysts 2819
Nickel Salts 2819

THE ARNOLD ENGINEERING COMPANY
310 Walnut Grove Road
Sevierville 37862
(615) 453-9071
Established 1971
R.W. Grove, Plant Manager
Carl Holiday, Foreman
Gary Crooke, Data Processing Manager
Carl Holiway, Production Manager
Harold Preshell, Purchasing Manager
Market: International
Employment: 92
Plant Size: 60000
Ceramic Permanent Magnets 3264

ALLEGHENY INTERNATIONAL
Two Oliver Plaza
Pittsburgh PA 15230
(412) 562-4000

CHARLIE BLALOCK & SONS INC.
Gatlinburg Highway
Sevierville 37862
(615) 453-2808
Established 1952
Bryan Blalock, President
Sidney Blalock, Vice President
Troy Carr, Chief Engineer
Jim Blalock, Comptroller
Dan McReynolds, Credit Manager
Jim Allen, Office Manager
Market: Regional
Employment: 200
Annual Sales: 15900000
Road Constuction 3531
Hot Mix Asphalt 3531

BLALOCK BROTHERS INC.
Gatlinburg Highway
PO Box 153
Sevierville 37862
(615) 453-2808
Established 1950
Clyde Blalock, President
Brent Blalock, Vice President
Ralph Rolen, Data Processing Manager
Dan Blalock, Office Manager
Charles Hurst, Purchasing Manager
Market: Local
Employment: 130
Building Construction 2452

BLALOCK LUMBER COMPANY
PO Box 31
Sevierville 37862
(615) 453-2808
Established 1950
Charlie Blalock, Owner
Market: Local
Employment: 25
Ready-Mixed Concrete 3273

CHEROKEE TEXTILE MILLS
Middle Creek Road
PO Box 152
Sevierville 37862
(615) 453-2825
Established 1915
A.B. Blanton Jr., Plant Manager
Russell Norville, Personnel Manager
Jack Henry, Purchasing Manager
Market: International
Employment: 780
Woven Fabrics 2221
Yarn 2282

JOHN COWDEN WOOD CARVERS
Route 9, Box 307
Sevierville 37862
(615) 436-5479
Established 1963
John & Beulah Cowden, Owners
Market: Local
Employment: 2
Wooden Craft Figures 2499

DOMINION AUTOMOTIVE INDUSTRIES INC.
415 Walnut Grove Road
Box 676
Sevierville 37862
(615) 428-0168
Established 1978
Fred E. Loepp II, Plant Manager
Donald A. Titsworth, Comptroller
Rick Owens, Data Processing Manager
Von C. Merritt, Personnel Manager
Mike Newkirk, Production Manager
Jerry Bernet, Purchasing Manager
Leon Patchin, Traffic Manager
Market: International
Employment: 310
Plant Size: 110000
Annual Sales: 20000
Automotive Mirrors 3231

DOMINION AUTO ACCESSORIES LTD.
420 Keele Street
Toronto Ontario Canada
(416) 763-3501

ELECTRO-VOICE INC.
1201 Dolly Parton Parkway
Sevierville 37862
(615) 453-5563
Established 1965
Ken Bell, Plant Manager
Vickie Sherman, Personnel Manager
Miran J. Webb, Purchasing Manager
Market: International
Employment: 200
Microphones 3651
Earphones 3651
Headsets 3651

EPA

POTENTIAL HAZARDOUS WASTE SITE
TENTATIVE DISPOSITION

REGION: IV | SITE NUMBER:

File this form in the regional Hazardous Waste Log File and submit a copy to: U.S. Environmental Protection Agency, Site Tracking System, Hazardous Waste Enforcement Task Force *(EN-335)*, 401 M St., SW, Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET	
Activated metals		
C. CITY	**D. STATE**	**E. ZIP CODE**
Sieverville	Tenn	

II. TENTATIVE DISPOSITION

Indicate the recommended action(s) and agency(ies) that should be involved by marking 'X' in the appropriate boxes.

RECOMMENDATION	MARK 'X'	ACTION AGENCY: EPA	STATE	LOCAL	PRIVATE
A. NO ACTION NEEDED -- NO HAZARD	X				
B. INVESTIGATIVE ACTION(S) NEEDED *(If yes, complete Section III.)*					
C. REMEDIAL ACTION NEEDED *(If yes, complete Section IV.)*					
D. ENFORCEMENT ACTION NEEDED *(If yes, specify in Part E whether the case will be primarily managed by the EPA or the State and what type of enforcement action is anticipated.)*					

E. RATIONALE FOR DISPOSITION

based on log sheet.

F. INDICATE THE ESTIMATED DATE OF FINAL DISPOSITION *(mo., day, & yr.)*	G. IF A CASE DEVELOPMENT PLAN IS NECESSARY, INDICATE THE ESTIMATED DATE ON WHICH THE PLAN WILL BE DEVELOPED *(mo., day, & yr.)*

H. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE *(mo., day, & yr.)*
Ron W. Joyner	881-3016	2-21-80

III. INVESTIGATIVE ACTIVITY NEEDED

A. IDENTIFY ADDITIONAL INFORMATION NEEDED TO ACHIEVE A FINAL DISPOSITION.

B. PROPOSED INVESTIGATIVE ACTIVITY *(Detailed Information)*

1. METHOD FOR OBTAINING NEEDED ADDITIONAL INFO.	2. SCHEDULED DATE OF ACTION *(mo, day, & yr)*	3. TO BE PERFORMED BY *(EPA, Contractor, State, etc.)*	4. ESTIMATED MANHOURS	5. REMARKS
a. TYPE OF SITE INSPECTION (1)				
(2)				
(3)				
b. TYPE OF MONITORING (1)				
(2)				
c. TYPE OF SAMPLING (1)				
(2)				

EPA Form T2070-4 (10-79)

Continue On Reverse

Continued From Front

III. INVESTIGATIVE ACTIVITY NEEDED and PART B - PROPOSED INVESTIGATIVE ACTIVITY (Continued)

d. TYPE OF LAB ANALYSIS				
(1)				
(2)				
e. OTHER (specify)				
(1)				
(2)				

C. ELABORATE ON ANY OF THE INFORMATION PROVIDED IN PART B (on lines above) AS NEEDED TO IDENTIFY ADDITIONAL INVESTIGATIVE WORK.

D. ESTIMATED MANHOURS BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES	1. ACTION AGENCY	2. TOTAL ESTIMATED MANHOURS FOR INVESTIGATIVE ACTIVITIES
a. EPA		b. STATE	
c. EPA CONTRACTOR		d. OTHER (specify)	

IV. REMEDIAL ACTIONS

A. SHORT TERM/EMERGENCY STRATEGY (On Site & Off-Site): List all emergency actions needed to bring site under immediate control, e.g., restrict access, provide alternate water supply, etc. See instructions for a list of Key Words for each of the actions to be used in the space below.

1. ACTION	2. EST. START DATE (mo, day, & yr)	3. EST. END DATE (mo, day, & yr)	4. ACTION AGENCY (EPA, State, Private Party)	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED
				$	
				$	
				$	
				$	
				$	
				$	

B. LONG TERM STRATEGY (On Site & Off-Site): List all long term solutions, e.g., excavation, removal, ground water monitoring wells, etc. See instructions for a list of Key Words for each of the actions to be used in the spaces below.

1. ACTION	2. EST. START DATE (mo, day, & yr)	3. EST. END DATE (mo, day, & yr)	4. ACTION AGENCY (EPA, State Private Party)	5. ESTIMATED COST	6. SPECIFY 311 OR OTHER ACTION; INDICATE THE MAGNITUDE OF THE WORK REQUIRED
				$	
				$	
				$	
				$	
				$	
				$	

C. ESTIMATED MANHOURS AND COST BY ACTION AGENCY

1. ACTION AGENCY	2. TOTAL EST. MANHOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES	1. ACTION AGENCY	2. TOTAL EST. MANHOURS FOR REMEDIAL ACTIVITIES	3. TOTAL EST. COST FOR REMEDIAL ACTIVITIES
a. EPA			b. STATE		
c. PRIVATE PARTIES			d. OTHER (specify)		

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT

REGION	SITE NUMBER (to be assigned by Hq)
IV	

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentative Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency, Site Tracking System; Hazardous Waste Enforcement Task Force (EN-335), 401 M St., SW; Washington, DC 20460.

I. SITE IDENTIFICATION

A. SITE NAME	B. STREET (or other identifier)		
Activated Metals & Chemicals			
C. CITY	**D. STATE**	**E. ZIP CODE**	**F. COUNTY NAME**
Sieverville	Tenn		

G. SITE OPERATOR INFORMATION

1. NAME		2. TELEPHONE NUMBER	
Mr. Oscar Dunn			
3. STREET	**4. CITY**	**5. STATE**	**6. ZIP CODE**
	Sieverville	Tenn.	

H. REALTY OWNER INFORMATION (if different from operator of site)

1. NAME		2. TELEPHONE NUMBER	
3. CITY		**4. STATE**	**5. ZIP CODE**

I. SITE DESCRIPTION

on a ridgetop, about 1/2 mi from Little Pigeon River.

J. TYPE OF OWNERSHIP

☐ 1. FEDERAL ☐ 2. STATE ☐ 3. COUNTY ☐ 4. MUNICIPAL ☒ 5. PRIVATE

II. TENTATIVE DISPOSITION (complete this section last)

A. ESTIMATE DATE OF TENTATIVE DISPOSITION (mo., day, & yr.)	B. APPARENT SERIOUSNESS OF PROBLEM
8/20/79	☐ 1. HIGH ☐ 2. MEDIUM ☒ 3. LOW ☐ 4. NONE

C. PREPARER INFORMATION

1. NAME	2. TELEPHONE NUMBER	3. DATE (mo., day, & yr.)
Ron W. Joyner	881-3016	2/13/80

III. INSPECTION INFORMATION

A. PRINCIPAL INSPECTOR INFORMATION

1. NAME	2. TITLE	
John Dickinson	Chief, Hazardous Materials Sections	
3. ORGANIZATION		**4. TELEPHONE NO. (area code & no.)**
U.S. EPA		881-3016

B. INSPECTION PARTICIPANTS

1. NAME	2. ORGANIZATION	3. TELEPHONE NO.
Bobby Morrison	Tennessee Solid Waste Manag	
Robin Morning	Tennessee Solid Waste Manag	

C. SITE REPRESENTATIVES INTERVIEWED (corporate officials, workers, residents)

1. NAME	2. TITLE & TELEPHONE NO.	3. ADDRESS
Mr. Andrew King	Co-Owner Act. Metals	

Continued From Front

II. INSPECTION INFORMATION (continued)

D. GENERATOR INFORMATION (sources of waste)

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE GENERATED
Ad. Metals & Chemicals			Spent Nickel Catalyst

E. TRANSPORTER/HAULER INFORMATION

1. NAME	2. TELEPHONE NO.	3. ADDRESS	4. WASTE TYPE TRANSPORTED
Mr. Oscar Dunn			Same as above

F. IF WASTE IS PROCESSED ON SITE AND ALSO SHIPPED TO OTHER SITES, IDENTIFY OFF-SITE FACILITIES USED FOR DISPOSAL.

1. NAME	2. TELEPHONE NO.	3. ADDRESS

G. DATE OF INSPECTION (mo., day, & yr.) 3/23/79

H. TIME OF INSPECTION

I. ACCESS GAINED BY: (credentials must be shown in all cases) [X] 1. PERMISSION [ ] 2. WARRANT

J. WEATHER (describe) unknown

IV. SAMPLING INFORMATION

A. Mark 'X' for the types of samples taken and indicate where they have been sent e.g., regional lab, other EPA lab, contractor, etc. and estimate when the results will be available.

1. SAMPLE TYPE	2. SAMPLE TAKEN (mark 'X')	3. SAMPLE SENT TO:	4. DATE RESULTS AVAILABLE
a. GROUNDWATER			
b. SURFACE WATER			
c. WASTE			
d. AIR			
e. RUNOFF			
f. SPILL			
g. SOIL			
h. VEGETATION			
i. OTHER (specify)			

B. FIELD MEASUREMENTS TAKEN (e.g., radioactivity, explosivity, PH, etc.)

1. TYPE	2. LOCATION OF MEASUREMENTS	3. RESULTS

Continue On Page 3

Continued From Page 2

IV. SAMPLING INFORMATION *(Continued)*

C. PHOTOS

1. TYPE OF PHOTOS: [ ] a. GROUND [ ] b. AERIAL

2. PHOTOS IN CUSTODY OF:

D. SITE MAPPED?

[ ] YES. SPECIFY LOCATION OF MAPS

E. COORDINATES

1. LATITUDE *(deg.-min.-sec.)*

2. LONGITUDE *(deg.-min.-sec.)*

V. SITE INFORMATION

A. SITE STATUS

[ ] 1. ACTIVE *(Those industrial or municipal sites which are being used for waste treatment, storage, or disposal on a continuing basis, even if intermittently.)*

[X] 2. INACTIVE *(Those sites which no longer receive wastes.)*

[ ] 3. OTHER *(specify)*: *(Those sites that include such incidents like "midnight dumping" where no regular or continuing use of the site for waste disposal has occurred.)*

B. IS GENERATOR ON SITE?

[X] 1. NO [ ] 2. YES *(specify generator's four-digit SIC Code)*: _____

C. AREA OF SITE ~~(in acres)~~

150' X 300'

D. ARE THERE BUILDINGS ON THE SITE?

[X] 1. NO [ ] 2. YES *(specify)*:

VI. CHARACTERIZATION OF SITE ACTIVITY

Indicate the major site activity*(ies)* and details relating to each activity by marking 'X' in the appropriate boxes.

X	A. TRANSPORTER	X	B. STORER	X	C. TREATER	X	D. DISPOSER
	1. RAIL		1. PILE		1. FILTRATION	X	1. LANDFILL
	2. SHIP		2. SURFACE IMPOUNDMENT		2. INCINERATION		2. LANDFARM
	3. BARGE		3. DRUMS		3. VOLUME REDUCTION		3. OPEN DUMP
	4. TRUCK		4. TANK, ABOVE GROUND		4. RECYCLING/RECOVERY		4. SURFACE IMPOUNDMENT
	5. PIPELINE		5. TANK, BELOW GROUND		5. CHEM./PHYS./TREATMENT		5. MIDNIGHT DUMPING
	6. OTHER *(specify)*:		6. OTHER *(specify)*:		6. BIOLOGICAL TREATMENT		6. INCINERATION
					7. WASTE OIL REPROCESSING		7. UNDERGROUND INJECTION
					8. SOLVENT RECOVERY		8. OTHER *(specify)*:
					9. OTHER *(specify)*:		

E. SUPPLEMENTAL REPORTS: If the site falls within any of the categories listed below, Supplemental Reports must be completed. Indicate which Supplemental Reports you have filled out and attached to this for..

[ ] 1. STORAGE [ ] 2. INCINERATION [X] 3. LANDFILL [ ] 4. SURFACE IMPOUNDMENT [ ] 5. DEEP WELL

[ ] 6. CHEM/BIO/PHYS TREATMENT [ ] 7. LANDFARM [ ] 8. OPEN DUMP [ ] 9. TRANSPORTER [ ] 10. RECYCLOR/RECLAIMER

VII. WASTE RELATED INFORMATION

A. WASTE TYPE

[ ] 1. LIQUID [X] 2. SOLID [ ] 3. SLUDGE [ ] 4. GAS

B. WASTE CHARACTERISTICS

[ ] 1. CORROSIVE [ ] 2. IGNITABLE [ ] 3. RADIOACTIVE [ ] 4. HIGHLY VOLATILE

[X] 5. TOXIC [ ] 6. REACTIVE [ ] 7. INERT [ ] 8. FLAMMABLE

[ ] 9. OTHER *(specify)*:

C. WASTE CATEGORIES

1. Are records of wastes available? Specify items such as manifests, inventories, etc. below.

Continue On Reverse

Continued From Front

VII. WASTE RELATED INFORMATION (continued)

Estimate the amount (*specify unit of measure*) of waste by category; mark 'X' to indicate which wastes are present.

a. SLUDGE	b. OIL	c. SOLVENTS	d. CHEMICALS	e. SOLIDS	f. OTHER
AMOUNT	AMOUNT	AMOUNT	AMOUNT [illegible]	AMOUNT 60000 lbs	AMOUNT
UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE	UNIT OF MEASURE lbs	UNIT OF MEASURE
(1) PAINT, PIGMENTS	X (1) OILY WASTES	X (1) HALOGENATED SOLVENTS	X (1) ACIDS	X (1) FLYASH	X (1) LABORATORY, PHARMACEUT.
(2) METALS SLUDGES	(2) OTHER(*specify*):	(2) NON-HALOGNTD. SOLVENTS	(2) PICKLING LIQUORS	(2) ASBESTOS	(2) HOSPITAL
(3) POTW		(3) OTHER(*specify*):	(3) CAUSTICS	(3) MILLING/MINE TAILINGS	(3) RADIOACTIVE
(4) ALUMINUM SLUDGE			(4) PESTICIDES	(4) FERROUS SMELTING WASTES	(4) MUNICIPAL
(5) OTHER(*specify*):			(5) DYES/INKS	(5) NON-FERROUS SMLTG. WASTES	(5) OTHER(*specify*)
			(6) CYANIDE	(6) OTHER(*specify*): Nickel Catalyst	
			(7) PHENOLS		
			(8) HALOGENS		
			(9) PCB		
			(10) METALS		
			(11) OTHER(*specify*):		

LIST SUBSTANCES OF GREATEST CONCERN WHICH ARE ON THE SITE (*place in descending order of hazard*)

1. SUBSTANCE	2. FORM (*mark 'X'*)			3. TOXICITY (*mark 'X'*)				4. CAS NUMBER	5. AMOUNT	6. UNIT
	a. SOLID	b. LIQ.	c. VAPOR	a. HIGH	b. MED.	c. LOW	d. NONE			
Nickel Catalyst	X				X					

VIII. HAZARD DESCRIPTION

FIELD EVALUATION HAZARD DESCRIPTION: Place an 'X' in the box to indicate that the listed hazard exists. Describe the hazard in the space provided.

A. HUMAN HEALTH HAZARDS

Continue On Page 5

Continued From Page 4

VIII. HAZARD DESCRIPTION (continued)

☐ B. NON-WORKER INJURY/EXPOSURE

☐ C. WORKER INJURY/EXPOSURE

☐ D. CONTAMINATION OF WATER SUPPLY

☐ E. CONTAMINATION OF FOOD CHAIN

☒ F. CONTAMINATION OF GROUND WATER

potential hazard

☒ G. CONTAMINATION OF SURFACE WATER

potential hazard

Continued From Page 8

X. WATER AND HYDROLOGICAL DATA (continued)

H. LIST ALL DRINKING WATER WELLS WITHIN A 1/4 MILE RADIUS OF SITE

1. WELL	2. DEPTH (specify unit)	3. LOCATION (proximity to population/buildings)	4. NON-COMMUNITY (mark 'X')	5. COMMUNITY (mark 'X')

I. RECEIVING WATER

1. NAME

☐ 2. SEWERS ☐ 3. STREAMS/RIVERS

☐ 4. LAKES/RESERVOIRS ☐ 5. OTHER (specify):

J. SPECIFY USE AND CLASSIFICATION OF RECEIVING WATERS

XI. SOIL AND VEGITATION DATA

LOCATION OF SITE IS IN:

☐ A. KNOWN FAULT ZONE ☐ B. KARST ZONE ☐ C. 100 YEAR FLOOD PLAIN ☐ D. WETLAND

☐ E. A REGULATED FLOODWAY ☐ F. CRITICAL HABITAT ☒ G. RECHARGE ZONE OR SOLE SOURCE AQUIFER

XII. TYPE OF GEOLOGICAL MATERIAL OBSERVED

Mark 'X' to indicate the type(s) of geological material observed and specify where necessary, the component parts.

X	A. OVERBURDEN	'X'	B. BEDROCK (specify below)	X'	C. OTHER (specify below)
	1. SAND				
	2. CLAY				
	3. GRAVEL				

XIII. SOIL PERMEABILITY

☒ A. UNKNOWN ☐ B. VERY HIGH (100,000 to 1000 cm/sec.) ☐ C. HIGH (1000 to 10 cm/sec.)

☐ D. MODERATE (10 to .1 cm/sec.) ☐ E. LOW (.1 to .001 cm/sec.) ☐ F. VERY LOW (.001 to .00001 cm/sec.)

G. RECHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

H. DISCHARGE AREA

☐ 1. YES ☐ 2. NO 3. COMMENTS:

I. SLOPE

1. ESTIMATE % OF SLOPE | 2. SPECIFY DIRECTION OF SLOPE, CONDITION OF SLOPE, ETC.

J. OTHER GEOLOGICAL DATA

Continue On Reverse

ontinued From Front

XIV. PERMIT INFORMATION

List all applicable permits held by the site and provide the related information.

A. PERMIT TYPE (e.g., RCRA, State, NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT NUMBER	D. DATE ISSUED (mo., day, & yr.)	E. EXPIRATION DATE (mo., day, & yr.)	F. IN COMPLIANCE (mark 'X') 1. YES	2. NO	3. UNKNOWN
NONE							

XV. PAST REGULATORY OR ENFORCEMENT ACTIONS

☐ NONE ☑ YES (summarize in this space)

State required material to be removed from site no later than April 6, 1979.

NOTE: Based on the information in Sections III through XV, fill out the Tentative Disposi ion (*Section II*) information on the first page of this form.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV--ATLANTA, GEORGIA

DATE: August 3, 1979

SUBJECT: Activated Metals Chemical Dump
in Cosby, Tennessee

FROM: Federal On-Scene Coordinator
Environmental Emergency Branch

TO: FILES

The Environmental Emergency Branch received a call from the Tennessee Civil Defense on July 1, 1979, concerning a large pool of a chemical that had been illegally dumped. The dump had occurred off of Highway 32 in Cosby, Tennessee and Cosby Creek was threatened by the chemical. Attached is a copy of the State's analysis of the material. Preliminary tests indicated the liquid had a pH greater than 12. Neither the Civil Defense nor the Division of Water Quality knew who dumped the material.

EEB informed Mr. John Dickinson of the dump and asked for his response to the scene. Mr. Dickinson stated that he could not go because Mr. Scarborough was out of town, and that the coordination for the disposal would best be done from Atlanta.

Mr. Allen Bartlett, Environmental Emergency Branch, EPA, Atlanta, Georgia, departed for Cosby, Tennessee at 10:30 pm on July 1, 1979 and arrived at 1:30 am, July 2nd. The Cocke County Sheriff's Department took Mr. Bartlett to the site at 2:30 am, but it was too dark to assess the situation safely.

At 8:00 am, July 2, 1979, Mr. Bartlett again went to the dump site. The affected area was about a half acre, with a chemical pool on the upper end. Everywhere the chemical had been, there was dead vegetation and the ground was like quicksand. On the lower end there was some leaching into Cosby Creek. At 10:00 am, Robin Manning, Tennessee Solid Waste, and Mike Miller, Tennessee Division of Water Quality, arrived to assess the situation. Mr. Miller took samples of the liquid for analysis in Nashville. The Tennessee Civil Defense and the Sheriff's Department were checking on possible sources of the illegal dump.

There was a concern about the leaching into Cosby Creek. Quick analysis using litmus paper was done upstream and downstream of the leaching stream and no effect was seen on Cosby Creek. The State was wanting to contain the material, but did not have any resources, and so EPA obtained the Project Number 190035 from Second Coast Guard District in order to contain the material. Once the material was contained, it would allow time to decide what to do with the material.

Allen Bartlett hired Petroleum Recycling Corporation, P. O. Box 10713, Knoxville, Tennessee, 37919, 615/693-7627 to contain the material. By 4:00 pm of July 2nd, a dirt dike had been put around the lower end of the chemical. The dike stopped the leaching into Cosby Creek.

Mr. Bartlett returned to Atlanta the morning of July 3 and met with John Dickinson and Kitty Tiami about the illegal dumping of the chemical. They wanted to work through the State for ultimate disposal. The material was classified as a "hazardous waste" because of its pH of 12.2

Mr. Earl Leming, Tennessee Division of Water Quality, Knoxville, informed EPA on the evening of July 3rd that the chemical came from Activated Metals, Sevierville, Tennessee. Mr. A. J. King, part owner of Activated Metals, was made aware of his responsibilities for the clean-up on July 3rd.

Mr. Bartlett communicated with Mr. King on July 4th concerning the clean-up. Mr. King said that he would assume the clean-up responsibilities and coordinate the clean-up with all people involved on July 5th.

Messrs. Bartlett, Manning, and Miller met with Mr. Jim King and Mr. Oscar Dunn at the dump site to discuss the removal of the contaminated residual. It was decided to try to drop the pH and mix dry material in with the fluid material so the residual could be disposed of at the Cocke County Landfill, which was approved by the Tennessee Solid Waste.

Activated Metals hired O. H. Materials to do the neutralizing of the chemical. Acetic Acid and Sulfuric Acid was used in the neutralization. The reaction was not a violent one. The reaction liquid was checked with litmus paper for a drop of pH. Two hundred gallons of 53% Acetic Acid and 150 gallons of 93% Sulfuric Acid was used in the neutralizing.

On July 6th, excavation of the material was started with hauling to the Cocke County Landfill. The area on the hill where the material was dumped was also excavated. The area of contamination was easily distinguishable because of its fluid nature. Saw dust and dirt was added to the material to make it drier for the landfill to handle it.

Mr. Chuck Moore, a T.A.T. Contractor for EPA, monitored the situation from July 7th through the 9th. His report is attached.

Allen S. Bartlett

Allen S. Bartlett

EPA PROJECT

ECOLOGY AND ENVIRONMENT, INC.

MEMORANDUM: REG IV COST CENTER EP904-4

TO: J. Stonebreaker

FROM: C. Moore

SUBJECT: Trip Report, TDD 4-7907-1

DATE: 7-12-79

COMMENTS:

On July 5, 1979, this office received a verbal TDD from the Region IV Environmental Emergency Office to send a TAT Member to the scene of a chemical spill off Route 32 out of Newport, Tennessee, approximately 1 mile below Cosby's store on the right. Specific instructions were to provide technical assistance and relief for the OSC, Alan Bartlett. John Cwiek, TATL arrived on scene 2000, 7/5/79. The following is a chronological summary of my activities and observations.

July 6, 1979

1600 - I arrived on the scene at the chemical spill site on Route 32 in Cosby, Tennessee. Alan Bartlett, OSC, Robin Manning from Tennessee Solid Waste and John Cwiek, TATL, informed me to the nature and kind of spill and how it was to be cleaned up.

1700 - Bartlett, Cwiek, Manning departed scene.

1830 - I left the scene, as excavation completed for the day.

July 7, 1979 (drizzling rain)

0800 - I arrived at spill sight. Oscar Dunn in charge of cleanup had cut 2 roads for trucks and heavy equipment to enter area for excavation of contaminated earth for transport to Cocke County landfill. The equipment used for this process was:

a) Boom Clamshell
b) C-266 backhoe on tracks
c) 456 John Deer Crawler
d) 956 Car doser
e) 8 dump trucks supplied by Blalocke & Sons Co.

0900 - Transport of excavated material to landfill began.

0930 - Dump truck tail gate opened and dumped half of truck contents on Route 32 for 1 mile beginning at Cosby's store ending at creek crossing.

1000 - Men were instructed to scoop contaminated dirt off the road.

1030 - James Wood, (Tennessee civil defense) informed us of complaints by the locals. He wanted us to discontinue transporting material to landfill. I called Alan Bartlett about this. He informed me to continue the cleanup. I returned and told Mr. Wood we must continue transport to the landfill and will make sure no more materials are spilled on the highway. I pacified other locals throughout the day concerning material spilled on highway.

1300 - Excavating process continued; Dave Melgaard, from Tennessee Water Quality and I monitored pH on the road and at the spill.

1900 - Secured for the day.

July 8, 1979

0800 - I arrived and observed excavation of material to landfill. I monitored pH, determined specific area was too caustic and should be neutralized further with diluted sulfuric acid.

1000 - Poured Sulfuric Acid from 55 gallon drum over more caustic areas.

1700 - Poured Sulfuric Acid over more caustic areas again.

1900 - Excavation and transport of contaminated earth to landfill ended.

July 9, 1979 (Rain)

0800 - Monday, the excavation had continued until less than a 100 foot diameter circle of spill material remained, considerably less than at the start.

0900 - Monitored area and found no significant caustic areas.

1030 - Called John Cwiek and Alan Bartlett to report progress so far. They told me to come home. It also began raining more heavily.

1100 - Cocke landfill people complained to us that the material was too soupy for them to take. I supported the idea to mix more dry dirt into the soupy spill material.

1115 - Notified Earl Leming, Tennessee Water Quality, who advised state would continue to monitor.

1130 - I left the scene for Atlanta, arriving 1700.

Gentlemen:

I write this letter in reference to the recent illegal dumping of hazardous chemicals by Activated Metals of Sevierville in the area of Cosby, TN. Very recently another dump site was found near Pittman Center. I ask you "How many unfound sites could exist"?

I feel this companies callers disregard of the laws, persons private property, and the health of the [redacted] community as well as their employees is sufficient reason for the attention of your agency to the activities of this company.

A close friend of mine worked there about 2 weeks and relayed to me a description of the attrocious conditions present in the plant. He said the management took some sort of sick pride in displaying the last several years citations by various government agencies.

If you were to inspect nearby properties you would probably see the effects of past disposal activities. While working for a surveyor several years ago I was in the back section of Burchwood Subdivision when I observed an area of land that resembled the surface of the moon. When I inquired I was told that this was the effect

of some runoff or dumping from the Activated Metals plant.

Obviously this is not a new procedure for this operation. They have a history of disregard for proper safety and disposal procedures. I feel the time for "charges to be filed" is long past. To be forced to comply now would not make up for past wrongs but hopfully could set the course for the future.

I hope your agency will see fit to take an agressive stand against this company's follies. The wellbeing of our community I feel, depends to some end on your actions with regard to this matter. At least you know where I stand and believe me I am sure I voice the [redacted] opinions of many, many persons in this community.

[redacted] I appreciate your kind consideration.

Sincerely

J. L. Whaley

January 24, 1979.

Governor Lamar Alexander,
Tennessee State Capitol,
Nashville, Tennessee 37219.

Dear Governor Alexander:-

In this Eastern Tennessee, as the Spanish say, "su tierra", the land where you were born, you have the staunchest supporters, an army of loyal, dependable voters. Your bold stand to promptly take the oath of office and save the good name of the State sgainst the blast of adverse news on television, radio and in the press, has been highly commended.

Among your thoughtful constituency comes the hope that the Nashville administration will at last recognize the necessity of carefully assessing your support here. It is easy to be emphatic about Democratic failings; it's far more difficult to clean up one's own. Through the Great Smoky Mountains National Park and the nearby TVA Douglas Lake, Sevier County has become a prominent recreational window with many prestigious visitors pouring in from all parts of the nation. And that window is smudgy with the soot of land deal corruption. Unless it is cleaned, it seems to be only a question of time before these outrageous realty practices will become the butt of national comics.

After enjoyable days in the incomparable Smokies, tourists' thoughts often turn to buying property where they may live or return again and again in vacation. The failures of all too many real estate developments in Sevier County are the sad ending to these dreams. My own land litigation is an outstanding, infamous example of the unhealthy conditions that prevail. You may see by the attached copies what has occurred. Briefly:-

1. In my original litigation, represented by Attorney Philip Durand of Knoxville, I attempted to clear the title on my fifty acre, District 13, Sevier County farm. I had bought it in 1941 with money given me by my mother. Taxes were never delinquent and were paid by me or someone acting in my behalf. I have not at any time signed or delivered any deed to this property to anyone. Through methods still not clearly known, Blaine McMahan claimed ownership of this farm after he became county trustee, and "sold" it to then Road Commissioner Oscar Dunn and the four Henderson brothers, Paul, Fred, Glenn, Conley,(Paul Henderson, past county Democratic chairman). These above mentioned were defendants in Case 8099, their attorney, Earl R. Hendry in Chancellor Earl R. Hendry's court. In the course of this litigation, they admitted that one of the deeds they submitted,in an effort to create a chain of title to my farm, was a fabrication.

2. Case 8099 was taken by me in propria persona in appeals through the state courts to the United States Supreme Court on the issue - can a judge practice law. The Supreme Court refused jurisdiction, thus letting stand without comment, its two previous decisions, - a judge cannot practice law and certainly not in his own court. This effectively voided any claims Henderson et al. make through this case to my farm.

3. Christine Merry Smith, through whom Blaine McMahan claimed as his predecessor in title to the farm, stated under oath in parallel litigation in Federal District Court, Los Angeles, California, to which I was not a party, that she never had or claimed to have any ownership of my farm and never knowingly signed any deed purporting to convey it.

4. Based on these federal judicial proceedings, a rescission of the deed between Christine M. Smith and Blaine McMahan, purportedly conveying my farm to him, was filed by Mrs. Smith with the Sevier County Register of Deeds.

5. In view of this rescission, of the illegality of Case 8099 and that mandatory full faith and credit be given to a sister state's court orders and proceedings, my plans of this past summer were to run a quiet title to my farm. Chancellor Hendry's forced resignation took effect early in 1978. These plans were rudely interrupted by Trustee McMahan et al. filing a complaint for a restraining order that I should not trespass on my farm, should not write, publish or speak of my farm and that a list of documents, referring to it and to a small, noncontiguous property my husband, Don Waters, owned, be "scrubbed" from the recorder's books. This demand to silence me was particularly aimed at my sending out such material as the enclosed Year End Letter to friends and acquaintances, at having the Abstract of Title published in a leading daily, or communicating with officials such as yourself.

6. Newly elected 13th Division Chancellor Rainwater granted the temporary restraining order in part, that I should not trespass on my farm. He failed to recognize that plaintiffs' claim to the property was based solely on the illegal proceedings of Case 8099 and a warranty deed from a nonowner. He failed to acknowledge the rescission or the federal court order and proceedings, copies of which had been filed as exhibits in my counterclaim.

Thus, in conclusion, as a friend of this administration, I forthrightly bring to your attention matters that the local bar association, the local attorney general, the many, many outraged citizens cannot do for fear of powerful regional retaliation.

Sevier County, with its desirable land, should have the best of roads, the best of educational facilities, a leading community among the ninety-five counties. Instead it is a constant beggar for state funds, and an outstanding candidate for national ridicule.

Where else can a judge practice in his own court, a trustee blatantly admit fabrication of a deed in order to claim real estate, confidently ask that deeds and other documents, voiding his ownership,

be removed fromthe records, sereiely demand the Constitution's First Amendment, insuring free speech, be abrogated for his personal benefit?

Unless this administration expresses extreme disapproval, the officials and politicians of Sevier County will continue their unlawful acts, feeling themselves securely above the law, a cankerous blot on Tennessee's reputation, observed by hundreds of visitors.

Thankyou for your kind attention.

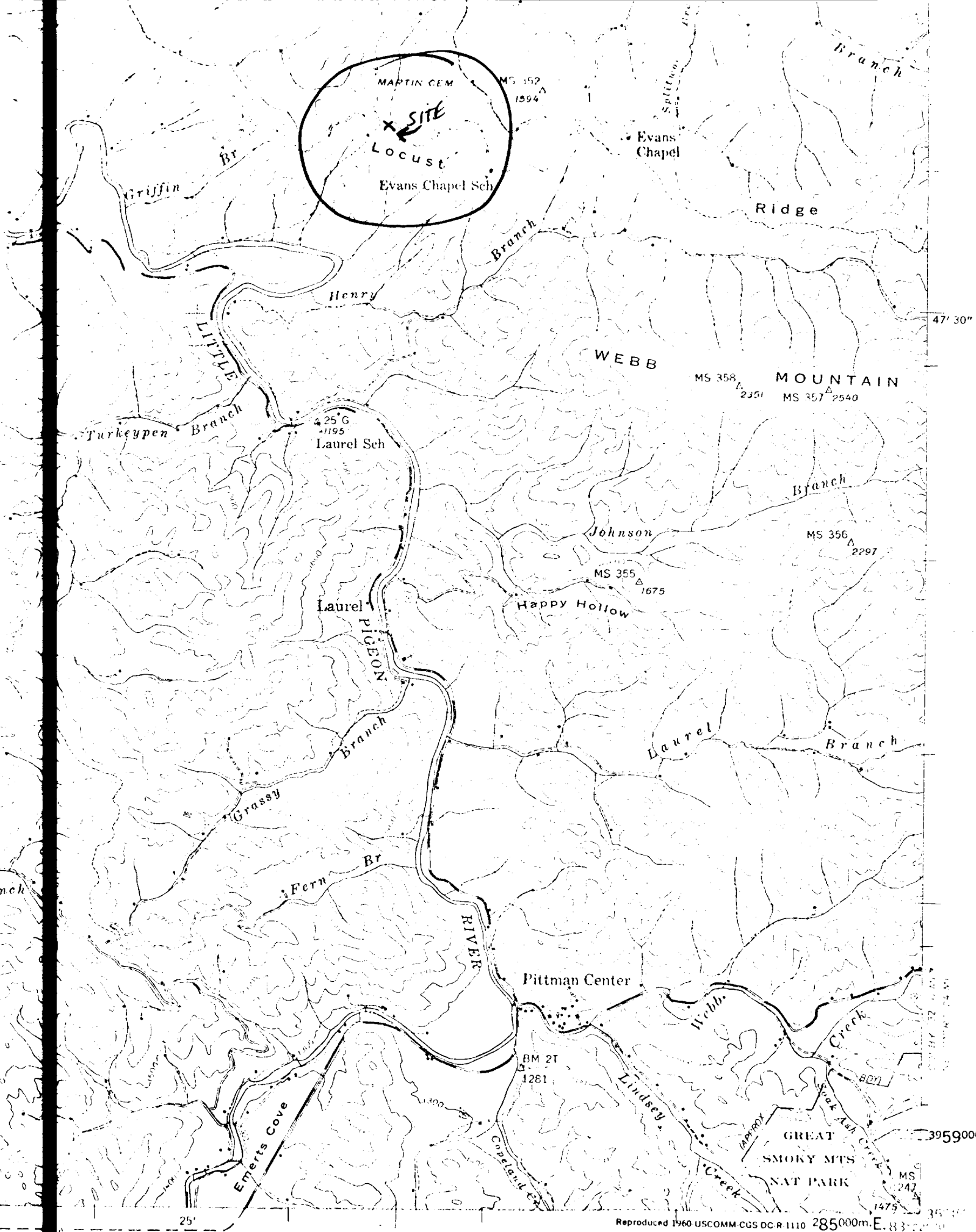
Margaret B. Waters

Mrs. M.B. Waters,
Seymour,
Tennessee 37865.

UNSCANNABLE

MEDIA

(PHOTOGRAPHS)


MARTIN CEM
MS 352
1594
SITE
Locust
Evans Chapel Sch
Evans Chapel
Griffin Br
Ridge
Henry
Branch
LITTLE
WEBB
MOUNTAIN
MS 358
2351
MS 357
2540
47' 30"
Turkeypen Branch
25 G
1195
Laurel Sch
Johnson
Branch
MS 356
2297
MS 355
1675
Laurel
Happy Hollow
PIGEON
Laurel
Branch
Grassy
Branch
Fern Br
RIVER
Pittman Center
Webb
Creek
BM 2T
1281
Lindsey
Creek
Emerts Cove
Copeland Cr
GREAT
SMOKY MTS
NAT PARK
MS
247
1475
25'
3959000
285000m.E.
Reproduced 1960 USCOMM-GS DC-R-1110
Polyconic projection, 1927 North American datum
10,000 foot grid based on Tennessee rectangular coordinate system
Miles

POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DATE: May 1, 1979

SUBJECT: Illegal disposal of Spent Nickel Catalyst near Sevierville, Tennessee

FROM: Hazardous Waste Coordinator

TO: James Scarbrough, Chief
Residuals Management Branch JHS 5/3/79

Summary

Approximately 6000 pounds of spent nickel catalyst was taken from Activated Metals & Chemicals Co. No. 1 Plant by Mr. Oscar Dunn and disposed of illegally north of Evans Chapel school in Sevier County. At Judge Charles Edwards' request, the State of Tennessee and EPA investigated this incident. Mr. Andrew J. King III, co-owner of Activated Metals & Chemicals Co. agreed to remove all the waste from the site and take it to his No. 1 plant for temporary storage no later than April 6, 1979. The company will work with the state to insure that the material is disposed of in an approved site.

Action

The state is vigorously enforcing their prohibition against illegal disposal and the company is cooperating to solve the problem. EPA will review the final action the state takes and give technical and lab assistance as requested and as resources allow.

Background

EPA received a call Thursday, March 22 from Judge Charles R. Edwards that he had followed two dump trucks to an isolated location near Sevierville in Sevier County Tennessee. The dump trucks were emptied into a pit and covered with dirt. Judge Edwards said the land adjoins his own and is close to the middle prong of the Little Pigeon River, a beautiful stream. He had been in contact with Robin Manning in the Knoxville Regional Office and was told by Mr. Manning that the material came from Activated Metals & Chemical Co. in Sevierville. Judge Edwards, a trial judge, wanted an EPA representative to join State inspectors the next day to inspect the burial site.

John Dickinson met Friday morning with Bobby Morrison, Chief Enforcement Tennessee Solid Waste Management Division and Robin Manning, Environmental Engineer and State Water Quality Engineers. We went first to the main Activated Metals & Chemicals Co. plant near the airport where we "met up" with two T.V. stations and a local county newspaper reporter. We met with Mr. Andrew James King III, co-owner of Activated Metals & Chemicals Company.

He explained that Mr. Oscar Dunn, a contractor he has used in the past, "volunteered" to take a waste spent nickel catalyst from their No. 1 Plant (on Old Knoxville Highway) and bury it on his property. The clean-up operation apparently began Thursday March 22 and was completed Tuesday March 27 (which was when Judge Edwards saw the trucks). The material is 95% Filter-all, a diatamaceous earth, and 5% Nickel sulfate.

The company tried to reclaim the nickel from the spent catalyst several years ago when the price of Nickel was $10 per pound but was unsuccessful. The spent catalyst came from Shell Chemical near New Orleans, La.

The material is in fiber drums. There are 100# - 200# per drum. Mr. King said that about 4000 - 6000 pounds of spent nickel catalyst had been buried according to his information. Mr. King said no liquid wastes had been taken to the site.

Mr. King said he was just "storing" the material at the site and it could be reclaimed later. EPA and the State insisted that burial constituted disposal. Mr. King said he would have preferred to take the material to the local landfill; Mr. Manning asked him how he could reclaim the material from the landfill. Mr. King weakly responded that he could but all the "fight" went out of him after this.

Mr. Morrison said that Mr. King had violated Tennessee law by disposing of waste material in an unregistered site and that it must be removed. Mr. King said that he would remove the material and bring it to his No. 1 Plant for repackaging.

We next went to the No. 1 Plant on Old Knoxville Highway to see some drums of material that had not been shipped off - site for disposal. We saw about 200 metal drums and about 25 fiber drums which were in bad condition. Some material had spilled on the ground. Water Quality will take a sample in the stream about 50 yds from the drum storage area to see if the material is leaving the site. Tennessee solid waste law allows disposal on your own land unless you are creating a hazard.

We next proceeded to the site which is located on a ridgetop about one half mile from the Little Pigeon River and north of Evans Chapel School (see Richardson Cove TN Topo map - site is just above L in Locust). This is a very remote area (see attached topo). The property is supposedly owned by Mr. Dunn, the contractor for Activated Metal & Chemicals. The Sevierville, Tennessee drinking water supply intake is about 7-8 miles downstream. We met Judge Edwards' wife and all the press at the site. Mrs. Edwards said that a local resident, a Mr. Allen, told her that 20 dump truck loads had been sent to the site. This estimate

conflicts sharply with the company's estimate of two dump truck loads. The disturbed area is about 150' X 300' and we estimate the trench way by 30'X 100'. According to Mrs. Edwards, no rain has fallen since Tuesday, the day the material was buried, so no creek samples were considered necessary. We told Mrs. Edwards and the press that the company had agreed to clean up the site as soon as possible and she was relieved to hear this. Mr. Morrison said that if the company would remove the material and dispose of it in accordance with state law, the state would not take enforcement action.

Responding to questions from the media, Mr. Dickinson of EPA explained that EPA was determining if this disposal constitued imminent and substantial endangement to public health or the environment. EPA will provide technical and analytical assistance to the state as requested and as resources permit. However, if the material is removed quickly no hazard should exist.

We went back to the main plant to discuss clean-up details with Mr. King. He said Mr. Dunn would start Monday (April 2) or Tuesday. He will use a backhoe and three dump trucks (no gaps, no spillage) to move the material back to his No. 1 site. The material will be stored in the loading chute and covered to prevent rainwater infiltration. The company will work with the State on finding an acceptable disposal site. Mr. Dickinson furnished Mr. King information on the two State-approved hazardous waste sites in our Region.

Mr. King was informed that these were estimates of twenty dump truck loads being taken to the site. He said that he will excavate and remove all the material so the amount there is unimportant. The State will provide an on-scene supervisor to insure that all the waste material is removed. The on-scene supervisor will decide what environmental samples are needed.

The State is requiring the material to be removed no later than April 6. Weather permitting, Mr. King throught the work could be completed in one working day.

The State is vigorously following this incident and the company is following the States' directions. Further EPA involvement consists of reviewing the final report on the incident unless requested by the State.

Rita E Davenport
for John E. Dickinson

Attachment

cc: Bobby Morrison, TN SW MAN.
Judge Charles R. Edwards

POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

April 9, 1979.

Governor Lamar Alexander,
Executive Chamber,
Nashville, Tenn. 37219.

Dear Governor Alexander:-

Thankyou for your kind note of March 28. Your concern about the regional real estate problem is well understood and appreciated not only by me, but by the many friends of your administration here. I am looking forward to meeting Inspector General John Rodgers.

If you will recall, my letter of January 24 to you ended with the prophetic paragraph:- "Unless this administration expresses extreme disapproval, the officials and politicians of Sevier County will continue their unlawful acts, feeling themselves securely above the law, a cankerous blot on Tennessee's reputation, observed by hundreds of visitors."

It is with great regret I now report the unbelievable events of the past weeks. Oscar Dunn, Blaine McMahan and the four Henderson brothers, Glenn, Paul, Fred, Conley, said to be angered by their apparent failure to prevail against me legally, sent threats to us - my daughter, Mrs. Crane, and I had better leave Tennessee and forget the litigation to clear the title to my farm. When we did not leave, and continued to press the case, the messages became stronger - they'd see we would never get any use out of the farm.

The first attempt at intimidation, apparently precipitated by these parties, was carried out in a vicious campaign to discredit Mrs. Crane and me, the methods used a denial of civil rights. The second was a shock not only to us but to the whole community. Toward the end of March, residents of Locust Ridge observed several pieces of earth moving equipment working at the old house site on the Waters farm. This is a high point on the ridge with the Little Pigeon River lying below. The frame house had perched here for nigh on a half century with the peaks of the Smokies etched on the horizon to the south. A deep well allowed us to live with this magnificent view since we were not dependent upon a spring for our water supply as were our neighbors in the hollows below. A large dry cellar was another advantage of being on the heights. When we moved from the farm, we had the buildings dismantled to avoid vandalism. The trees and vines we had planted prospered through the years, walnut, apple, plum, grape, raspberry and a rambler rose.

Now a bulldozer tore through the profuse growth and a backhoe gouged out a trench across cellar, well and chimney down the slope to where the log barn had stood. I have been told that the machines were owned and operated by Oscar Dunn and Cleo McMahan. Any entry upon this land by Dunn-McMahan-Henderson was illegal, whatever the purpose. The orders and proceedings of the Federal District Court, Los Angeles, holding that Henderson-Dunn-McMahan's alleged predecessor in title to the farm, Christine Merry Smith, neither had nor claimed to have any right, title or interest in the property, were filed with the Sevier

County Register of Deeds, and a motion for full faith and credit was before the Sevier County Chancery Court, Case 10919.

Arthur Allen, a TVA employee and expert heavy equipment operator, who lives a short distance from the Waters farm, saw trucks passing along the Locust Ridge with open barrels of sludgy liquid. These containers were dumped into the ditch dug at the house site. One passerby says the cement cap was knocked off the well and a quantity of the liquid poured down the shaft. We later learned the barrels contained waste products from Kings' Activated Metals and Chemicals Inc., Sevierville. Since the original dumping and covering up, we had several days of heavy rains at the beginning of April with runoff directly from the "landfill site" to the Little Pigeon River and eventually into the TVA system.

A group was called in to investigate the toxic materials, including the federal environmental protection agency representative from Atlanta, a Nashville chemist, two solid waste analysts from Knoxville and Nashville and the local health department. A news conference was held at the Waters farm on March 30 before TV cameras and radio and newspaper reporters, with resulting stories on the air and in the press just as the Smoky Mountains spring flowering was attracting thousands of visitors from all over the nation. We hear it was only due to frantic coverup attempts the real story was concealed that the persons involved are community leaders, Oscar Dunn, the exroad commissioner of Sevier County, the Henderson brothers, prominent land developers, Blaine McMahan, trustee of Sevier County.

But the full story unfolds, the slow, gathering fury of the area residents that Dunn-McMahan-Henderson could seemingly thus conspire to create a health hazard to vent their vengeance on losing a legal battle. For who would befoul his own property?

I have two questions - What action will be taken to rid the Waters farm and surrounding area of this material? What action will the State take concerning the persons responsible for this planned infamous act of malicious destruction?

Thankyou for your attention.

Margaret B Waters

Mrs. M.B.Waters,
Seymour,
Tennessee 37865.

April 18,1979.

Mr. John Dickinson,
Air and Hazardous Materials Division,
Solid Waste Management Section,
Environmental Protection Agency,
Region IV,
345 Cortland Street,
Atlanta, Georgia.

Dear Mr. Dickinson:-

The enclosed correspondence is self explanatory.

We have been told that on April 10, the chemical waste from activated metals, buried at the old house site on the Waters farm, was removed in several semitruck loads. I question if it is possible to remove in one day what it took Oscar Dunn and Cleo McMahan five or six days to dump.

As you know, TCA 53-6302-15, Hazardous Waste Management Act, and the parallel United States Code give public officials strict control of all hazardous wastes.

My questions:-

What waste and how much was dumped on the Waters farm?

What, if any check, has been made to ascertain if all the waste was removed?

What is the danger to the immediate site?

Can the old well ever be used again?

What effect will the chemicals have on the surrounding area, i.e. wells, springs, streams and river?

What can be done to prevent hazardous wastes from being used as a weapon as they were in the matter of the Waters farm?

Will any action be taken against Activated Metals and the transporters of the material?

Thankyou for your courtesy in replying.

Mrs.M.B.Waters,
Seymour, Tenn. 37865.

Margaret B Waters

POOR LEGIBILITY

PORTIONS OF THIS DOCUMENT MAY BE UNREADABLE, DUE TO THE QUALITY OF THE ORIGINAL

May 3, 1979.

Mr. Herbert Johnson;
Solid Waste Management Section,
Air and Hazardous Materials Division,
Environmental Protection Agency, Region IV,
345 Cortland Street, Atlanta, Georgia.

Dear Mr. Johnson:-

It was a pleasure and most encouraging to speak with you on Tuesday of this week concerning the Activated Metals dump on the Waters farm, Locust Ridge, Sevier County, Tennessee. According to residents along the ridge, approximately twenty truck loads were dumped over a period of several days in March. Mrs. Addie Allen, phone 615-453-5810, who lives beside the "back way" up the ridge, saw five trucks pass her house in one day. Trucks also used the Richardson Cove "front way" in hauling according to another witness, Arthur Allen, son of Mrs. Addie Allen, the same phone number.

On April 10, all the material is alleged to have been removed on that same date. From published reports, Robin Freeman, of the Knoxville Solid Wastes Department, said that Oscar Dunn supervised the removal of the waste. Mr. Freeman seemed satisfied that all the waste had been removed. Mr. Dunn and Cleo McMahan were the original transporters of the waste. It is shocking that the same person who illegally dumped the material should be permitted to "supervise" its "exhuming", with no government authority on hand to check the removal.

On April 23, with a shovel I scraped off three or four inches of dirt in a small area of the supposedly "clean" site and found broken pieces of cardboard containers. There were pockets of a cobalt colored hard substance, also a light blue and a white material. In another area, I found more cardboard and metal strapping apparently from broken containers. Carefully I collected these items.

In our phone conversation, you inquired what you could do to help redress this illegal burial:-

1. We would like a statement of exactly what and how much waste was dumped on the farm and the dates dumped.

2. Exactly how much waste was removed and how many of the cartons were broken.

3. How hazardous is the waste from the broken cartons.

This would appear to be doubly of interest to EPA since the watershed from the farm drains directly into the Little Pigeon River and hence into TVA. May I please have a reply from you.

Mrs. M. W. Crane, Seymour, Tenn.
37865.

Margaret Crane

STATE OF TENNESSEE
DEPARTMENT OF PUBLIC HEALTH
EAST TENNESSEE REGIONAL OFFICE
ALEX B. SHIPLEY REGIONAL HEALTH CENTER
1522 CHEROKEE TRAIL
KNOXVILLE, TENNESSEE 37920

June 15, 1979

CERTIFIED MAIL

Mr. James King
Activated Metals & Chemicals, Inc.
P. O. Box 32
Sevierville, Tennessee 37862

Re: Required Reports on Treatment of New Process Wastewater (Cobalt Carbonate): Unauthorized Disposal of Sodium Aluminate Sludge at the Former Bemberg Plant in Elizabethton: NPDES Compliance Inspection Report of January 12, 1979

Dear Mr. King:

To confirm our discussions of May 22, 1979, the Division of Water Quality Control has determined that Activated Metals and Chemicals, Inc., is responsible for the discharge of industrial wastewater at the former Bemberg Plant in Elizabethton due to the disposal of sodium aluminate sludge at the site. The discharge is unpermitted and, as such, in violation of the Tennessee Water Quality Control Act, TCA 70-324, et. seq. (copy enclosed). Further discharge of the waste must cease immediately, and plans on the future disposal of the waste must be submitted to the Department for approval.

Also, enclosed are copies of the following documents:

1. NPDES Compliance Inspection Report (CSI) for Activated Metals and Chemicals, Inc.
2. Rules of the Tennessee Department of Public Health, Division of Water Quality Control.
3. Chapter 1, Outline of Engineering Requirements, State Design Criteria.

The NPDES Compliance Inspection Report for Activated Metals and Chemicals, Inc., was originally mailed on January 12, 1979 with a thirty (30) day reply stipulation. To date, a written reply to the inspection has not been received by this office.

The Regulations of the Division and Chapter 1 of the State Design Criteria are included specifically to inform Activated Metals and Chemicals, Inc., of the requirements necessary to achieve approval on modification of existing treatment facilities or construction of new treatment facilities due to proposed process additions. An engineering report evaluating the effects of the new discharge on existing treatment facilities and incorporating design of any proposed changes in the system, followed by final plans and specifications on the changes, must be submitted to and approved by the Division in sequence. Also, a NPDES permit modification will be necessary through the Environmental Protection Agency should the proposed process changes and expanded wastewater treatment facilities be on line prior to the existing permit expiration date.

Please respond to the disposal of the sodium aluminate sludge, the NPDES Compliance Inspection Report, and preliminary plans on the proposed process modifications as related to wastewater treatment and disposal within thirty (30) days of receipt of this letter.

If further clarification is needed, please contact us.

Sincerely,

Larry D. Watson, P.E.
Knoxville Basin Office
Division of Water Quality Control

LDW:bm

cc: Mr. Sanford W. Harvey, Jr., Enforcement Division,
EPA, Region IV, Atlanta
Mr. Robin Manning, Div. Solid Waste Management,
Knoxville
Mr. Jack Delozier, City of Sevierville
Sevier County Health Department
Technical Review Section, WQC, Nashville

STATE OF TENNESSEE

LAMAR ALEXANDER
Governor

EXECUTIVE CHAMBER
Nashville 37219

March 28, 1979

Mrs. Margaret B. Waters
Seymour, Tennessee 37865

Dear Margaret,

Thank you for your letter concerning land deal corruption in Sevier County. I share your hope that Sevier County can become a recreational center. With regard to the specific facts involved in your court case, I am referring your letter to my newly appointed Inspector General, John Rodgers. He will check in to your allegations concerning the improper conduct of persons involved in your suit, and refer them to the proper authority if they appear to be well-founded.

Sincerely,

Lamar Alexander

LA/jgb

EXECUTIVE CHAMBER
Nashville 37219

Mrs. Margaret B. Waters
Seymour, Tennessee 37865

MAY 17 1979

REF: 4E-ME

Mr. S. N. Milazzo
President
Activated Metals and Chemicals, Inc.
P. O. Box 32
Sevierville, Tennessee 37862

Re: NPDES Permit No. TN0002194
Discharge to the City of Sevierville's
Sewage Treatment Plant

Dear Mr. Milazzo:

The Environmental Protection Agency has issued a National Pollutant Discharge Elimination System (NPDES) permit to the City of Sevierville, Tennessee for their sewage treatment plant. This permit requires that the sewage treatment plant meet a set of stringent effluent limitations designed to protect the water quality of the Little Pigeon River.

The City of Sevierville experienced interference in the operation and performance of their sewage treatment plant during October of 1978 due to the introduction of sodium aluminate into the sewage collection system. This industrial waste had a disruptive effect on the treatment processes of the plant. This in turn caused violations of their NPDES permit and violations of the water quality standards of the receiving stream. A letter submitted by the City to this Agency attributed this problem to the introduction of sodium aluminate by Activated Metals into an industrial sewer line which connects to the Sevierville sewage treatment plant on the following occasions:

October 10, 1978	4,000 gallons
October 13, 1978	13,000 gallons
October 16, 1978	4,000 gallons

Pursuant to Section 307b of the Clean Water Act, this Agency promulgated regulations entitled "General Pretreatment Regulations for Existing and New Sources of Pollution" (40 CFR Part 403). These regulations became effective on August 25, 1978, and supersede previously promulgated Pretreatment Standards, 40 CFR Part 128. Subpart 403.5 prohibits any source of a nondomestic discharge to inhibit or interfere with the operation or performance of Publicly Owned Treatment Works (POTW's). Specifically, paragraph B(3) prohibits solid or viscous pollutants in amounts which will interfere with the operation of the POTW.

Please be advised that by discharging sodium aluminate into the City of Sevierville's sewage collection system in quantities which cause process upsets or losses of treatment efficiency, your facility is in violation of Section 307d of the Federal Water Pollution Control Act. Therefore, in order for this Agency to carry out its responsibilities under the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251, et.seq., the "Act"), you are required under the authority of Section 308 of the Act (33 U.S.C. 1319) to submit to this Agency the following information.

1. Quantity of sodium aluminate generated as waste on a weekly basis.

2. Quantity and dates of disposal of sodium aluminate wastes into the industrial sewer lines that flow into the City of Sevierville's sewage treatment plant.

3. Normal disposal procedures of sodium aluminate wastes including the locations of disposal sites by Activated Metals.

4. Future plans for the disposal of sodium aluminate wastes.

The requested information is to be submitted within fifteen (15) days of receipt of this letter and should be sent to Mr. John Moebes, Chief, KY/TN Compliance Group, Water Enforcement Branch, Enforcement Division.

Section 309 of the Act (33 U.S.C. 1319) provides civil and criminal penalties for failure to submit information required under Section 308 and criminal penalties for knowingly making a false statement in any submission under Section 308.

If you have any questions concerning legal or technical aspects of the Act, contact Ms. Joan Boilen, Attorney, at (404)881-3506 or Mr. John Moebes at (404)881-3973.

Sincerely yours,

Original Signed By

Sanford W. Harvey, Jr.
Director
Enforcement Division

cc: Mr. D. Elmo Lunn
Tennessee Department of Public Health

TDL
TDLEWIS:dd:3973:03/26/79

Concurrences:

4E-WE	4E-WE	4E-WE	4E	4E
Moebes	Patrick	Harlow	Zeller	Harvey
4/26/79	4/26	6 H 5/4		

ACTIVATED METALS & CHEMICALS, INC.

June 4, 1979

Mr. Sanford W. Harvey
Director Enforcement Division
Environmental Protection Agency
345 Courtland Street, N. E.
Atlanta, Georgia 30308

Re: Letter dated May 17, 1979
To - Mr. S. N. Milazzo

Dear Mr. Harvey:

The inferences stated in your letter dated May 17, 1979 were quite shocking to me. Inferences were made that Activated Metals was the reason the Sevierville Water Treatment facility was experiencing problems. Was the plant not operating on a marginal basis at best prior to October 1978? Have you any facts as to the reason the treatment facility went out of service? We would also like to review a copy of the letter sent to you by the City of Sevierville.

We feel that all questions asked on Page 2 of your letter are proprietary; therefore, would you please send us your procedure for handling this information.

Why have you waited until May 1979 to discuss a problem that occurred 7 months ago? Due to the complexity of this problem, and the accusations, we are asking for a 90 day extension to your request for further information.

Yours very truly,

ACTIVATED METALS & CHEMICALS, INC.

Andrew J. King, III
Co-Owner

AJK:hg

P. O. BOX 32 • SEVIERVILLE, TENNESSEE 37862 • AREA CODE 615 453-7177